

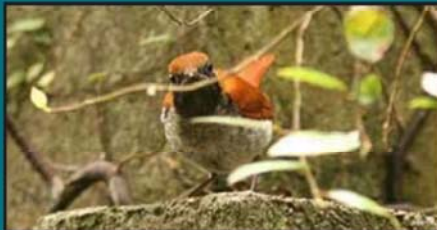
Natural Resources Studies for Proposed MV-22
Landing Zones in Okinawa

Appendix D





Final Report for Natural Resources Studies for Proposed MV-22 Landing Zones in Okinawa



March 2012

ACRONYMS AND ABBREVIATIONS

CAL	Confined Area Landing
CR	Critically Endangered
CR+EN	Endangered Species
CTA	Central Training Area
DD	Data Deficient
EN	Endangered
EW	Extinct in the Wild
EX	Extinct
GoJ	Government of Japan
GPS	Global Positioning System
ha	hectare
ISTF	Ie Shima Training Facility
JEGS	Japanese Environmental Governing Standards
LCES	Law for the Conservation of Endangered Species
LHA	Landing Helicopter Assault
LHD	Landing Helicopter Deck
LP	Threatened Local Population
LZ	Landing Zone
m	meter
Marine Corps	United States Marine Corps
NT	Near Threatened
NTA	Northern Training Area
VIP	Very Important Person
VU	Vulnerable

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1.0 INTRODUCTION

1.1 Overview of the Survey Area

Okinawa is positioned near the center of the Ryukyu archipelago, which consists of a group of islands scattered in an arch extending approximately 1,200 kilometers from the south of Kyushu, Japan to Taiwan. A total of 35 Landing Zones (LZs) situated on Okinawa and the nearby island of Ie Shima, comprised the focus of this natural resource survey. The surveyed LZs lie within areas divided into four main zones used by the United States Marine Corps (Marine Corps): Ie Shima Training Facility (ISTF), Northern Training Area (NTA), Central Training Area (CTA), and Administrative area (Figure 1-1). A total of 30 LZs support tactical training consisting primarily of Confined Area Landings (CALs) designed to permit aircrews to practice their primary combat mission. Another five LZs receive use for administrative purposes only; these activities include refueling, troop transport, Very Important Person (VIP) transport, and emergency medical operations.

The island of Ie Shima is approximately 5 kilometers west of the Motobu Peninsula on Okinawa Island. The ISTF occupies 802 hectares (ha) of the western portion of the island. The remainder of Ie Shima is dominated mostly by agricultural land, with minimal development located on the eastern half of the island.

The NTA lies in the northern part of Okinawa Island, covering 7,552 ha, and including lands of Kunigami Village and Higashi Village. The northern part of Okinawa Island has been kept less-developed and is comprised of many thick forests. These forests are home to many endemic flora and fauna species.

The CTA, located in the middle of Okinawa Island, borders on: Nago city, Kin town, Onna village, and Ginoza village. The CTA contains more development than the NTA, but also includes many forested/undeveloped areas. The CTA covers approximately 7,002 ha.

The Administrative LZs are scattered among installations in the southern portion of Okinawa. These LZs occur within the developed sections of Marine Corps Air Station Futenma, Camp Foster and Camp Kinser. The Administrative LZs occupy almost entirely developed areas and include minimal, if any, undisturbed landscape.

1.2 Survey Objectives

This report presents detailed information on survey methods and results for the intensive natural resources surveys of the selected LZs on Okinawa. Biological resources considered during the surveys included vegetation, plant communities, wildlife and special status species. These special status species include Protected (National Natural Monument, Prefectural Natural Monument, and Domestic Endangered species) and Red List species.

This report presents a descriptive document designed to present data on natural resources. These data are summarized in the Environmental Review for MV-22 Basing and Operations (Marine Corps 2011) where the analysis of potential impacts is also provided. However, this natural resources report includes no impact analysis since it focuses on describing current conditions for a subset of LZs.

The Marine Corps undertook this survey to provide detailed data to support an analysis of impacts from operating MV-22 aircraft at the LZs. Although a total of 68 LZs were assessed in an Environmental Review (Marine Corps 2011), it was determined that 35 required survey whereas sufficient previous data existed for the other 33. However, for the 35 LZs examined in this report (Table 1-1 and refer to Figure 1-1) no previous watershed studies or surveys had been performed. These flora and fauna surveys were performed by EAC, Inc. (of Okinawa) under subcontract to TEC Inc.

Table 1-1. List of LZs Surveyed

No. ¹	Location	Nomenclature	Elevation (m)	Latitude (North)	Longitude (East)
1	Ie Shima	LHA/LHD	25.6	26°43'51.79"	127°45'27.43"
2		Coral Runway	57.3	26°43'36.38"	127°45'57.29"
3		Sling Load	40.2	26°43'38.78"	127°45'32.37"
4		Sling Load Alternative	40.2	26°43'38.78"	127°45'32.37"
5		VIP Helipad	58.2	26°43'36.27"	127°46'05.29"
6		Drop Zone	48.5	26°43'40.29"	127°45'45.67"
7	Northern Training Area	LZ1	261.2	26°45'08.65"	128°15'50.32"
8		LZ3	200.6	26°44'19.09"	128°17'22.70"
9		LZ Firebase Jones	271.3	26°45'40.50"	128°16'22.36"
10	Central Training Area	LZ Buzzard	89.0	26°28'50.39"	127°55'20.61"
11		LZ Cardinal	87.8	26°31'59.96"	128°01'00.44"
12		LZ Crane	82.3	26°29'53.35"	127°52'15.19"
13		LZ Flamingo	57.0	26°28'25.92"	127°54'44.48"
14		LZ Gander	45.7	26°31'36.19"	127°59'27.99"
15		LZ Goose	132.6	26°32'16.88"	127°59'01.30"
16		LZ Heron	77.4	26°29'10.11"	127°51'30.59"
17		LZ Kin Blue	10.1	26°26'31.57"	127°56'28.79"
18		LZ Kin Red ²	1.5	26°26'48.97"	127°54'41.50"
19		LZ Kin Red (Alt) ²	8.5	26°26'52.19"	127°54'40.91"
20		LZ Magpie	86.3	26°28'10.77"	127°54'43.58"
21		LZ Petrel ²	81.7	26°28'15.58"	127°55'14.75"
22		LZ Phoenix ²	76.2	26°31'47.61"	128°01'43.20"
23		LZ Rail	76.2	26°32'23.78"	128°01'41.96"
24		LZ Raven	114.6	26°27'51.80"	127°51'33.52"
25		LZ Rook	85.3	26°29'34.52"	127°52'02.85"
26		LZ Swallow	66.4	26°27'40.63"	127°54'20.55"
27		LZ Swan	18.3	26°26'28.82"	127°56'45.10"
28		LZ Tern ²	76.2	26°28'58.58"	127°55'14.11"
29		LZ Turkey ²	69.5	26°28'43.00"	127°55'57.17"
30	LZ Wren	149.7	26°29'12.09"	127°53'48.44"	
31	Administrative	LZ Courtney	22.6	26°23'42.81"	127°51'29.40"
32		LZ Futenma VIP	70.7	26°16'46.13"	127°54'12.81"
33		LZ Kinser 1	28.7	26°14'49.92"	127°41'37.47"
34		LZ Plaza	109.1	26°18'50.00"	127°46'42.85"
35		LZ Schwab 3 ²	35.4	26°31'41.98"	128°02'36.91"

¹Numbers are not official LZ designators.

²Eliminated from consideration for use by MV-22s after survey conducted; however, this report will describe results for current and future use.

Notes: m = meters

LHA = Landing Helicopter Assault
LHD = Landing Helicopter Deck

2.0 SURVEY METHODS

2.1 Survey Items and Dates

Survey areas for each LZ includes the 30 meters by 30 meters (100 feet by 100 feet) LZ landing point and a surrounding buffer with a radius of 107 meters (350 feet) beyond the LZ landing point areas. The total surveyed area covered 5.0 ha (12.3 acres) for surveying each LZ and accounts for the maximum extent of potential disturbance. Vegetation, Protected Species, and Red List species were noted in each LZ survey area. General survey methods by flora and fauna categories and survey dates are shown in Table 2-1.

Table 2-1. Survey Items, Methods, and Survey Dates

Survey Items		Survey Method	Survey Dates (all 2011)
Plants	Flora	Vascular plants	2 June – 17 August
		Large algae	2 June – 17 August
	Vegetation	Vegetation Survey (method standardized by Josias Braun-Blanquet)	2 June – 17 August
Animals	Mammals	Random meandering method, bat detector	2 June – 10 August
	Birds	Random meandering method	2 June – 10 August
	Reptiles and Amphibians	Random meandering method	2 June – 10 August
	Insects	Random meandering method	2 June – 10 August
		Bait trap method	27 July – 30 August
		Sweeping and beating method	
		Light trap method	
	Spiders	Random meandering method	2 June – 10 August
		Pitfall trap, sweeping and beating method	2 June – 10 August
Terrestrial shellfish	Random meandering method	2 June – 10 August	
Crustaceans	Random meandering method	2 June – 10 August	

2.2 Vegetation Surveys

Plant communities were decided by conducting research on plant community compositions using the phytosociological technique of Braun-Blanquet. Details of the vegetation survey are described below.

- A physiognomic vegetation map of each LZ survey area was created by classifying the survey area into broad plant communities from interpretations of aerial photographs taken and held by the Marine Corps, distant viewings during field explorations, and existing vegetation data.
- Survey plots were established at locations that were generally representative of each vegetation type. In general, the size of the plots was 15 meters x 15 meters, but varied depending on the vegetation community being surveyed.
- Depending on the vegetation present in each plot, forests with tall trees were classified into four layers – tall tree, sub-tall tree, shrub, and herbaceous layers. Forests with smaller trees were classified into three layers – sub-tall tree, shrub, and herbaceous layers. Forests with low trees

were classified into two layers – shrub and herbaceous layers. Grassland was classified into one or two herbaceous layer(s).

- At each survey plot a community composition table (Appendix E), was compiled for each plant community, in each layer. The degrees of coverage and sociability of each species were measured in each layer and the main vegetation type was determined. The cover scale and sociability standards are detailed in Appendix E.
- The physiognomic vegetation map was then revised for the decided plant communities based on the site surveys conducted, and new vegetation maps were created for each landing zone survey area.

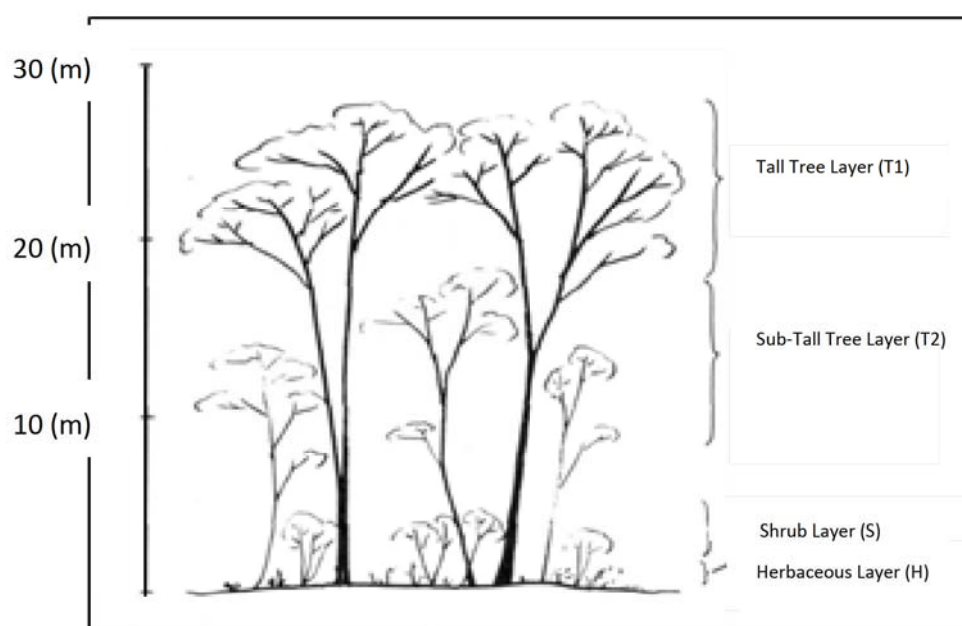


Figure 2.1. Typical Vegetation Community Layer Structure

2.3 Flora and Fauna Surveys

2.3.1 Definition of Protected Species and Red List Species

Protected Species are those species specified in the Japan Environmental Governing Standards (JEGS) (USFJ 2010). A species which falls into at least one of the following categories was considered a Protected Species.

- Domestic Endangered Species designated by the Japan Ministry of the Environment under the Law for the Conservation of Endangered Species (LCES) of Wild Fauna and Flora Species.
- National Natural Monument Species designated by the Japanese Agency for Cultural Affairs under the Law for the Protection of Cultural Properties.
- Prefectural Natural Monument Species designated by the Okinawa Prefectural Government under the Prefectural Ordinance for the Protection of Cultural Properties.

Red List species are not considered Protected Species under the current JEGS. Both the Government of Japan (GoJ) and Okinawa Prefecture designate species to be Red List and maintain autonomous listings of these species. The Red Data Book of Japan and the Red Data Book of Okinawa Prefecture are the published listing of Red Lists species and include life cycles, habitats, distribution, and other species attributes in order to help understand which flora and fauna species are facing the risk of extinction. **There are no legal protections offered to Red List species unless they are also listed under the LCES or as Natural Monument species. A species which falls into at least one of the following categories was considered a Red List species.**

- Red List species listed by the Japan Ministry of the Environment for Aves, Reptilia, Amphibia, and Invertebrata other than Insecta and Mollusca (2006).
- Red List species listed by the Japan Ministry of the Environment for Mammalia, Pisces, Insecta, Mollusca, Vascular Plants and Algae (2007).
- Red Data Book Species listed by the Okinawa Prefectural Government in the Threatened Wildlife in Okinawa, 2nd Ed. (Animals) Red Data Okinawa (2005).
- Red Data Book Species listed by the Okinawa Prefectural Government in the Threatened Wildlife in Okinawa, 2nd Ed. (Fungi and Plants) Red Data Okinawa (2006).

Red List species are given designations to indicate the degree they are at risk of extinction (Tables 2-2 and 2-3).

Table 2-2. Category Classifications and Definitions of the Ministry of the Environment Red List

Categories	Abbreviation	Definitions
Extinct	(EX)	Species thought to be extinct in Japan.
Extinct in the Wild	(EW)	Species surviving only in captivity.
Endangered Species	(CR+EN)	Species in danger of extinction.
Critically Endangered	(CR)	Species facing an extremely high risk of extinction in the wild in the near future.
Endangered	(EN)	Species facing a high risk of extinction in the wild in the near future.
Vulnerable	(VU)	Species facing an increasing danger of extinction.
Near Threatened	(NT)	Though facing a small risk of extinction, changes in their habitat may move the species into the "Endangered" category.
Data Deficient	(DD)	The Ministry lacks data needed to assess the risk to the species.
Threatened Local Population	(LP)	An isolated local population that faces a high extinction risk.

Table 2-3. Category Classifications and Definition of the Okinawa Prefecture Red Data Book

Categories	Abbreviation	Definitions
Extinct	(EX)	Species thought to be extinct in Okinawa Prefecture.
Extinct in the Wild	(EW)	Species surviving only in captivity.
Endangered Species	(CR+EN)	Species in danger of extinction in Okinawa Prefecture.
Critically Endangered	(CR)	Species facing an extremely high risk of extinction in the wild in Okinawa Prefecture in the near future.
Endangered	(EN)	Species facing a high risk of extinction in the wild in Okinawa Prefecture in the near future.
Vulnerable	(VU)	Species facing an increasing danger of extinction.
Near Threatened Species	(NT)	Species losing their basis for survival.
Data Deficient	(DD)	The Prefecture lacks data needed to assess the species' risk of extinction in Okinawa Prefecture.
Threatened Local Population	(LP)	An isolated population in Okinawa Prefecture that faces a high extinction risk.

2.3.2 Protected Species and Red List Species Survey Methods

The approach for each LZ was specific to the location and existing vegetation, topography, and other physical features. In some instances, such as Administrative LZs, structures or development fell within the LZ survey area. Survey teams noted these features and examined only vegetative portions. After review of each LZ through reports, aerial photography, and a site visit, layouts of survey routes and plots were determined. Survey routes were designed to include the most likely habitat for Protected Species of flora and fauna. Emphasis was placed on surveys of habitat areas that were mostly undisturbed within the survey area, such as mature forest.

In addition to conducting daytime Protected Species surveys, nighttime surveys were conducted at the LZs within the NTA from 1900 to 2300 hours. Nighttime surveys were completed at times when there was a high probability for observing nocturnal reptiles and amphibians.

When a Protected/Red List species was observed during the course of a survey, the position was marked on a topographic map and the location was recorded using a GIR 1600 Global Positioning System (GPS) unit made by Sokkia Co. LTD. This is a 12 channel unit with sub-meter accuracy. Each observed species' location was recorded, unless the species was located by call, in which case the area from where the species was calling was marked on a detailed field map containing aerial imagery and topography and later plotted using Geographic Information System software. Whenever possible, photographs of the species were taken. The following details the specific survey methods used for different natural resource categories.

2.3.2.1 Vascular Plants

Based on the judgment of the surveyors, different types of plant communities, habitats and microsites were sought out in order to encounter as much diversity in species as possible throughout the survey area. All of the Protected and Red List vascular plants encountered and identified in the field were recorded. When a new plant was encountered, but could not be identified in the field, a sample of the plant was collected and taken back to the laboratory for identification using the taxonomic sequences and nomenclature broadly following that of Hatusima and Amano (1994).

2.3.2.2 *Large Algae*

Based on review of aerial photography and existing vegetation maps, different types of habitats and microsites were sought out in order to encounter as much diversity in species as possible in and along the rivers and streams of each survey area. All of the large algae encountered and identified in the field were recorded in field notes. When a new algae species was encountered, but could not be identified in the field, a sample of the algae was collected and taken back to the laboratory for identification using the taxonomic sequences and nomenclature following that of Hirose and Yamagishi (1991).

2.3.2.3 *Mammals*

Researchers surveyed each LZ survey area randomly and confirmed species by visual sightings, calls, and trails (fecal matter, footprints, and feeding marks). During the nighttime survey at the NTA sites (LZ 1, LZ 3, LZ Firebase Jones), a bat detector was used to confirm the presence of a smaller type of bat (Microbats: *Microchiroptera*). Details of the bat detector are shown in Figure 2-2.

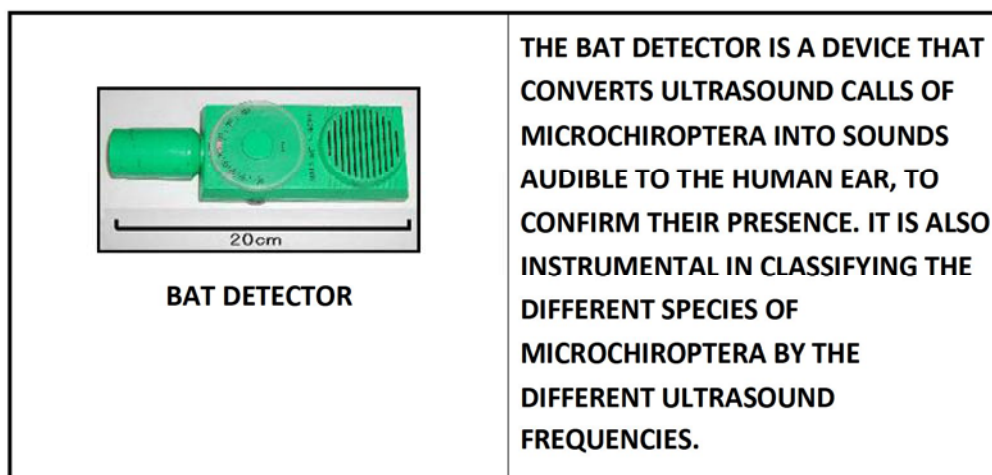


Figure 2-2. Details of the Bat Detector

2.3.2.4 *Birds*

Researchers surveyed the LZ areas and confirmed the presence of bird species by listening and confirming bird calls and by visual sightings with field glasses or telescopes. Daytime bird surveys were conducted at all LZ locations, nighttime surveys were conducted only at the sites within the NTA. The daytime surveys started at sunrise and ended by 1000 hours and nighttime surveys were conducted from approximately 1830 to 2200 hours.

2.3.2.5 *Reptiles and Amphibians*

Surveys were conducted using the Random Meandering Survey Method. Researchers surveyed the area randomly based on likely habitat of Protected and Red List species, and confirmed individual reptile and amphibian species by visual sightings, capture, exuviae, eggshells, and calls. During the survey not only were active individuals identified, but attention was also given to resting individuals by checking

underneath fallen leaves and branches, and beneath or between rocks. Daytime reptile and amphibian surveys were conducted at all LZ locations, nighttime surveys were only conducted at the NTA sites.

2.3.2.6 *Insects*

A literature search was completed prior to conducting the insect surveys in order to gain information on potential Protected Species and Red List insects in each area.

2.3.2.6.1 *Random Meandering Survey*

Researchers surveyed the area arbitrarily, concentrating on likely habitat for rare species, and confirming species by visual observation and insect songs. Species collection and identification was done by visual sighting and capture, the sweeping method, which collected insects on plants by swinging a net, and also by the beating method, which collected specimens as they fell from plants when the branches and leaves are shaken.

2.3.2.6.2 *Pitfall Trap, Sticky Trap, and Hanging Bag Survey*

At the NTA sites, plastic cups containing bait were buried with the rim of the cups even with the ground surface, and insects were lured in and collected (Figure 2-3). The bait used was a mixture of lactic acid bacteria beverage and beer. This trap principally targeted ground-dwelling insect families and were placed at dusk and collected the next morning. For targeting flying insect families, sticky traps were set. Butterflies were also attracted using the hanging bag method. The hanging bags were filled with a rotten banana and liquor mix, placed at dusk, and captured species were recorded.

2.3.2.6.3 *Light Survey*

At the NTA sites, ultraviolet light bulbs were set up before sunset and left on throughout the night, collecting insects that were attracted by the light in the trap. One trap was set up at each LZ location and they were collected the next morning.

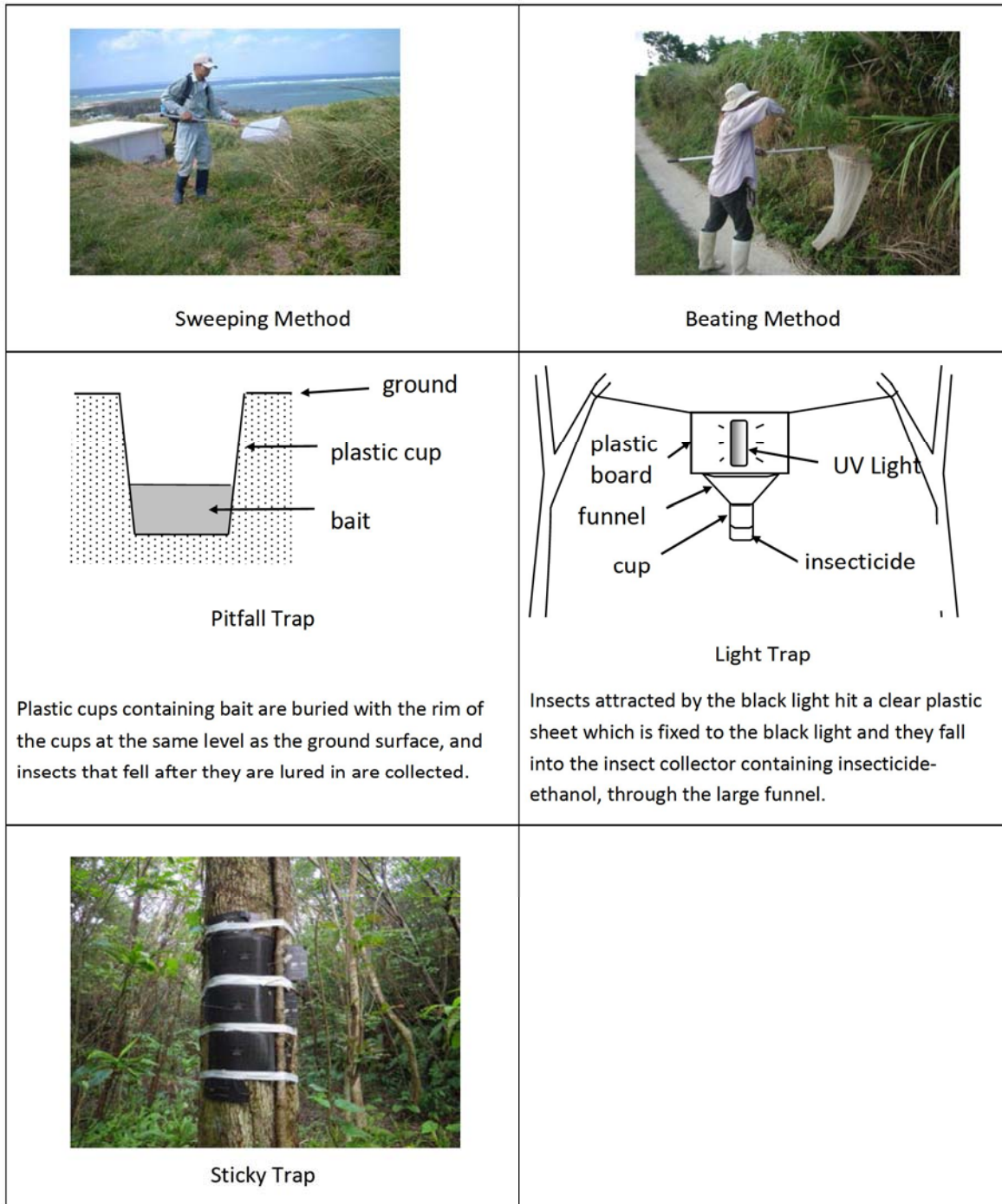


Figure 2-3. Insect Survey Methods

2.3.2.7 *Land Snails*

Researchers surveyed the area using the random meandering method, concentrating on likely habitat for rare species. Terrestrial shellfish species were collected by capture from trees and grass, fallen leaves and branches on forest floors, toppled trees, beneath stones, and roadside ditches.

2.3.2.8 *Crustaceans*

Researchers surveyed the area using the random meandering method. Terrestrial crustacean species were collected by capture from trees and grass, fallen leaves and branches on forest floors, toppled trees, beneath stones, and roadside ditches.

3.0 SURVEY RESULTS

The following discussion summarizes the results of the vegetation survey and survey of Protected and Red List species at 35 potential landing zones on Okinawa and Ie Shima. Data tables at the end of this report and appendices include supporting documentation for the survey results. Data tables include lists of Protected and Red List species recorded during the survey. Appendix A has maps of all of vegetation communities, locations of Protected Species, locations of Red List species, and locations of Protected Species potential habitat; Appendix B includes photographs of species; Appendix C contains photographs of the LZs; and Appendix D includes the Geographic Information Systems data descriptions; and Appendix E contain vegetation plot tables.

3.1 Vegetation

There were 22 vegetation communities observed in this survey. A broad classification for each community is given below. Table 3-1 provides more detailed compositional characteristics and main species of each vegetation community. See Appendix E for vegetation survey point data sheets.

- *Pandanus odoratissimus* community: coastal forest,
- *Castanopsis sieboldii/Tarenna gracilipes* association: subtropical evergreen broad-leaved secondary forest,
- *Quercus miyagii* community: subtropical evergreen broad-leaved forest,
- *Macaranga tanarius* community: subtropical evergreen broad-leaved secondary forest,
- *Castanopsis sieboldii-Illicium anisatum* association: subtropical evergreen broadleaved forest,
- *Ficus microcarpa - Ficus virgata* community: subtropical evergreen broadleaved forest,
- *Leucaena leucocephala* community: non-native shrubland,
- *Ipomea pes-caprae/Thuarea involuta* community: coastal strand herbaceous,
- *Leucaena leucocephala/Miscanthus sinensis* community: grassland,
- *Psychotria manillensis - Cinnamomum pseudo-ped* community: subtropical evergreen broad leaved secondary forest,
- *Panicum repens* community: grassland,
- *Psychotria rubra - Schima wallidhii ssp. liukiensis* community: subtropical evergreen broadleaved secondary forest,
- *Casuarina* plantation: agricultural or urban planted,
- *Trema orientalis/Oreocnide pedunculata* alliance: subtropical evergreen broadleaved secondary forest,
- *Pleioblastus linearis* community: bamboo forest,
- *Pinus luchuensis* community: evergreen coniferous secondary forest,
- Developed Land (residential and commercial area),
- Pasture Land,
- Farmland Weed community,
- Natural Bare Land,
- Developed Land (cleared), and
- Open Water (open water only, but included as a vegetation category for complete coverage).

Table 3-1. Vegetation Community Structural Composition and Dominant Species

Vegetation Name	Structure	NTA	CTA	Other
<i>Pandanus odoratissimus</i> community	Shrub layer	-	<i>Pandanus odoratissimus</i>	-
	Herb layer	-	<i>Pandanus odoratissimus</i>	-
<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association	Tree layer	<i>Castanopsis sieboldii</i>	<i>Castanopsis sieboldii</i>	-
	Sub-tree layer	<i>Distylium racemosum</i> , <i>Elaeocarpus japonicus</i> , <i>Syzygium buxifolium</i>	<i>Elaeocarpus japonicus</i> , <i>Schima wallichii</i> ssp. <i>liukiensis</i> <i>Syzygium buxifolium</i>	-
	Shrub layer	<i>Pleioblastus linearis</i> , <i>Syzygium buxifolium</i> , <i>Elaeocarpus japonicus</i> , <i>Antidesma japonicum</i> , <i>Distylium racemosum</i>	<i>Pleioblastus linearis</i> , <i>Syzygium buxifolium</i> , <i>Ardisia quinquegona</i> , <i>Randia canthiodes</i> , <i>Persea thunbergii</i>	-
	Herb layer	<i>Alsophila podophylla</i> , <i>Alpinia intermedia</i> , <i>Castanopsis sieboldii</i> , <i>Rapanea nerifolia</i> , <i>Blechnum orientale</i>	<i>Cibotium barometz</i> , <i>Cinnamomum doederleini</i> , <i>Lophatherum gracile</i> , <i>Gahnia tristis</i> , <i>Dicranopteris linearis</i> , <i>Psychotria serpens</i>	-
<i>Quercus miyagii</i> community	Tree layer	-	<i>Quercus miyagii</i>	-
	Sub-tree layer	-	<i>Quercus miyagii</i>	-
	Shrub layer	-	<i>Ardisia quinquegona</i>	-
	Herb layer	-	<i>Cibotium barometz</i>	-
<i>Macaranga tanarius</i> community	Sub-tree layer	-	<i>Macaranga tanarius</i>	<i>Macaranga tanarius</i> , <i>Bischofia javanica</i>
	Shrub layer	-	<i>Leucaena leucocephala</i> , <i>Morus australis</i>	<i>Elaeocarpus sylvestris</i> , <i>Turpinia ternate</i> , <i>Bischofia javanica</i> , <i>Pittosporum tobira</i> , <i>Psychotria manillensis</i>
	Herb layer	-	<i>Osplismenus compositus</i>	<i>Alocasia odora</i> , <i>Piper kadzura</i>
<i>Castanopsis sieboldii</i> - <i>illicium anisatum</i> association	Tree layer	<i>Castanopsis sieboldii</i>	-	-
	Sub-tree layer	<i>Meliosma lepidota</i> ssp. <i>Squimulata</i>	-	-
	Shrub layer	<i>Schefflera octophylla</i> , <i>Ardisia quinquegona</i>	-	-
	Herb layer	<i>Bolbitis subcordata</i>	-	-
<i>Ficus microcarpa</i> - <i>Ficus vigata</i> community	Tree layer	-	-	<i>Ficus microcarpa</i>
	Sub-tree layer	-	-	<i>Ficus virgate</i>
	Shrub layer	-	-	<i>Cinnamomum pseudo-pedunculatum</i> , <i>Litsea japonica</i>
	Herb layer	-	-	<i>Piper kadzura</i>
<i>Leucaena leucocephala</i> community	Sub-tree layer	-	<i>Leucaena leucocephala</i>	-
	Shrub layer	-	<i>Ficus erecta</i>	<i>Leucaena leucocephala</i>
	Herb layer	-	<i>Alocasia odora</i>	<i>Bidens pilosa</i> var. <i>radiata</i> f. <i>decumbens</i>
<i>Ipomea pes-caprae</i> / <i>Thuarea involute</i> community	Herb layer	-	<i>Ipomea pes-caprae</i> ssp. <i>Brasiliensis</i>	-
<i>Leucaena leucocephala</i> / <i>Miscanthus sinensis</i> community	Herb layer	<i>Miscanthus sinensis</i>	<i>Miscanthus sinensis</i>	<i>Miscanthus sinensis</i>

Table 3-1. Vegetation Community Structural Composition and Dominant Species (con't)

Vegetation Name	Structure	NTA	CTA	Other
<i>Psychotria manillensis</i> - <i>Cinnamomum pseudo-</i> <i>ped</i> community	Sub-tree layer	-	-	<i>Cinnamomum pseudo-</i> <i>pedunculatum</i>
	Shrub layer	-	-	<i>Elaeocarpus sylvestris</i>
	Herb layer	-	-	<i>Trachelospermum</i> <i>asiaticum</i> var. <i>liukuense</i>
<i>Panicum repens</i> community	Herb layer	-	<i>Panicum repens</i>	<i>Panicum repens</i>
<i>Psychotria rubra</i> - <i>Schima</i> <i>wallichii</i> ssp. <i>Liukuensis</i> community	Tree layer	-	<i>Schima wallichii</i> ssp. <i>Liukuensis</i> , <i>Elaeocarpus japonicus</i>	<i>Persea thunbergii</i>
	Sub-tree layer	-	<i>Schima wallichii</i> ssp. <i>Liukuensis</i> , <i>Elaeocarpus japonicus</i> , <i>Cinnamomum doederleinii</i> , <i>Daphniphyllum glaucescens</i> ssp. <i>Teijsmannii</i> , <i>Syzygium buxifolium</i>	<i>Persea thunbergii</i> , <i>Daphniphyllum</i> <i>glaucescens</i> ssp. <i>teijsmannii</i>
	Shrub layer	-	<i>Pleioblastus linearis</i> , <i>Syzygium buxifolium</i> , <i>Ardisia quinquegona</i> , <i>Elaeocarpus japonicus</i>	<i>Gardenia jasminoides</i> <i>f. grandiflora</i>
	Herb layer	-	<i>Psychotria serpens</i> , <i>Psychotria rubra</i> , <i>Persea thunbergii</i> , <i>Cibotium barometz</i> , <i>Ardisia quinquegona</i> , <i>Selaginella doederleinii</i>	<i>Thelypteris parasitica</i>
Casuarina plantation	Tree layer	-	<i>Casuarina equisetifolia</i> , <i>Casuarina cunninghamiana</i>	-
	Sub-tree layer	-	<i>Casuarina equisetifolia</i> , <i>Casuarina cunninghamiana</i> , <i>Elaeocarpus sylvestris</i> , <i>Leucaena leucocephala</i>	-
	Shrub layer	-	<i>Casuarina equisetifolia</i> , <i>Pleioblastus linearis</i> , <i>Morus australis</i> , <i>Syzygium buxifolium</i> , <i>Ficus erecta</i> , <i>Pandanus odoratissimus</i> , <i>Daphniphyllum glaucescens</i> ssp. <i>Teijsmannii</i> , <i>Neolitsea serica</i> , <i>Persea thunbergii</i>	-
	Herb layer	-	<i>Alocasia odora</i> , <i>Cibotium barometz</i> , <i>Dianella ensifolia f. recemulifer</i> , <i>Dicranopteris linearis</i> , <i>Nephrolepis hirsutula</i> , <i>Oplismenus compositus</i> , <i>Persea thunbergii</i>	-
<i>Trema</i> <i>orientalis</i> / <i>Oreocnide</i> <i>pedunculata</i> alliance	Sub-tree layer	-	<i>Morus australis</i> , <i>Cinnamomum pseudo-</i> <i>pedunculatum</i> , <i>Symplocos lucida</i> var. <i>nakaharae</i>	<i>Morus australis</i>
	Shrub layer	-	<i>Morus australis</i>	<i>Pittosporum tobira</i>
	Herb layer	-	<i>Thelypteris acuminata</i>	<i>Paederia scandens</i>

Table 3-1. Vegetation Community Structural Composition and Dominant Species (con't)

Vegetation Name	Structure	NTA	CTA	Other
<i>Pleioblastus linearis</i> community	Shrub layer	<i>Pleioblastus linearis</i>	<i>Pleioblastus linearis</i>	-
	Herb layer	<i>Dicranopteris linearis</i>	<i>Dicranopteris linearis</i>	-
	Tree layer	-	<i>Pinus luchuensis</i>	-
<i>Pinus Luchuensis</i> community	Sub-tree layer	<i>Pinus luchuensis</i>	<i>Pinus luchuensis</i> , <i>Symplocos lucida</i> var. <i>nakaharae</i> , <i>Syzygium buxifolium</i> , <i>Schima wallichii</i> ssp. <i>Liukuensis</i> , <i>Persea thunbergii</i>	-
	Shrub layer	<i>Schima wallichii</i> ssp. <i>Liukuensis</i>	<i>Pleioblastus linearis</i> , <i>Daphyniphyllum glaucescens</i> ssp. <i>Teijsmannii</i> , <i>Elaeocarpus japonicus</i> , <i>Pittosporum tobira</i> , <i>Persea thunbergii</i> , <i>Pinus luchuensis</i>	-
	Herb layer	<i>Dicranopteris linearis</i>	<i>Dicranopteris linearis</i> , <i>Carex brunnea</i> , <i>Eraihthus formosanus</i> var. <i>pollinioides</i> , <i>Persea thunbergii</i> , <i>Psychotria serpens</i> , <i>Rapanea nerifolia</i>	-

3.1.1 Ie Shima Landing Zones

The ISTF is comprised of approximately 802 ha located on the western portion of the island. A mixture of residential, industrial, and agricultural lands exists on Ie Shima, but the ISTF is primarily surrounded by agricultural areas. Due to development on Ie Shima, most natural/semi-natural vegetation is located on steep slopes and protected areas on the island (MCB Camp Butler 2009). A total of six LZs and nearby areas on the ISTF were evaluated for biological resources (Figure 3-1). Vegetation around the ISTF LZs is divided into three types: grassland, shrub, and tree stand. Five of the six LZs surveyed contained Pasture Land as the main vegetation type. LHA/LHD was the only exception where the main vegetation type was Developed Land (cleared). Additional vegetation types were present at all LZs and included the non-native shrubland *Leucaena leucocephala* community and the secondary forest *Macaranga tanarius* community (Table 3-2). Detailed vegetation maps of each LZ on Ie Shima are in Appendix A, Figures 1-1 through 1-6.

Table 3-2. Vegetation Types at Landing Zones on Ie Shima

Landing Zone	Vegetation Communities with Greatest Coverage ¹	Other Vegetation Communities ¹
LHA/LHD	Developed Land (cleared)	Pasture Land <i>Macaranga tanarius</i> community
Coral Runway	Pasture Land	Developed land (cleared)
Sling Load	Pasture Land	-
Sling Load Alternative	Pasture Land	<i>Leucaena leucocephala</i> community
VIP Helipad	Pasture Land	-
Drop Zone	Pasture Land	<i>Leucaena leucocephala</i> community

¹Community Structural and Compositional Characteristics in Table 3-1.



Figure 3-1 Landing Zone Locations on Ie Shima Training Facility

3.1.2 Northern Training Area

The NTA is located at the northeast end of Okinawa Prefecture and is comprised of approximately 7,552 ha, the majority of which is located within National Forest owned by the GoJ and private individuals (Figure 3-2). According to Kaneshiro and Iwahashi (2000) the Nature Conservation Society of Japan has designated forests dominated by *Castanopsis sieboldii* which are more than 30 years old as “natural forests” and much of the remaining natural forests on Okinawa are in the NTA.

Forests within the NTA are dominated by either the *Castanopsis sieboldii*-*Illicium anisatum* association or the *Castanopsis sieboldii*-*Tarenna gracilipes* association. The latter community is a younger forest that has probably been disturbed (possibly cut) within the last several decades. All three LZs surveyed in the NTA (LZ 1, LZ 3, and Firebase Jones) contained the secondary forest *Castanopsis*

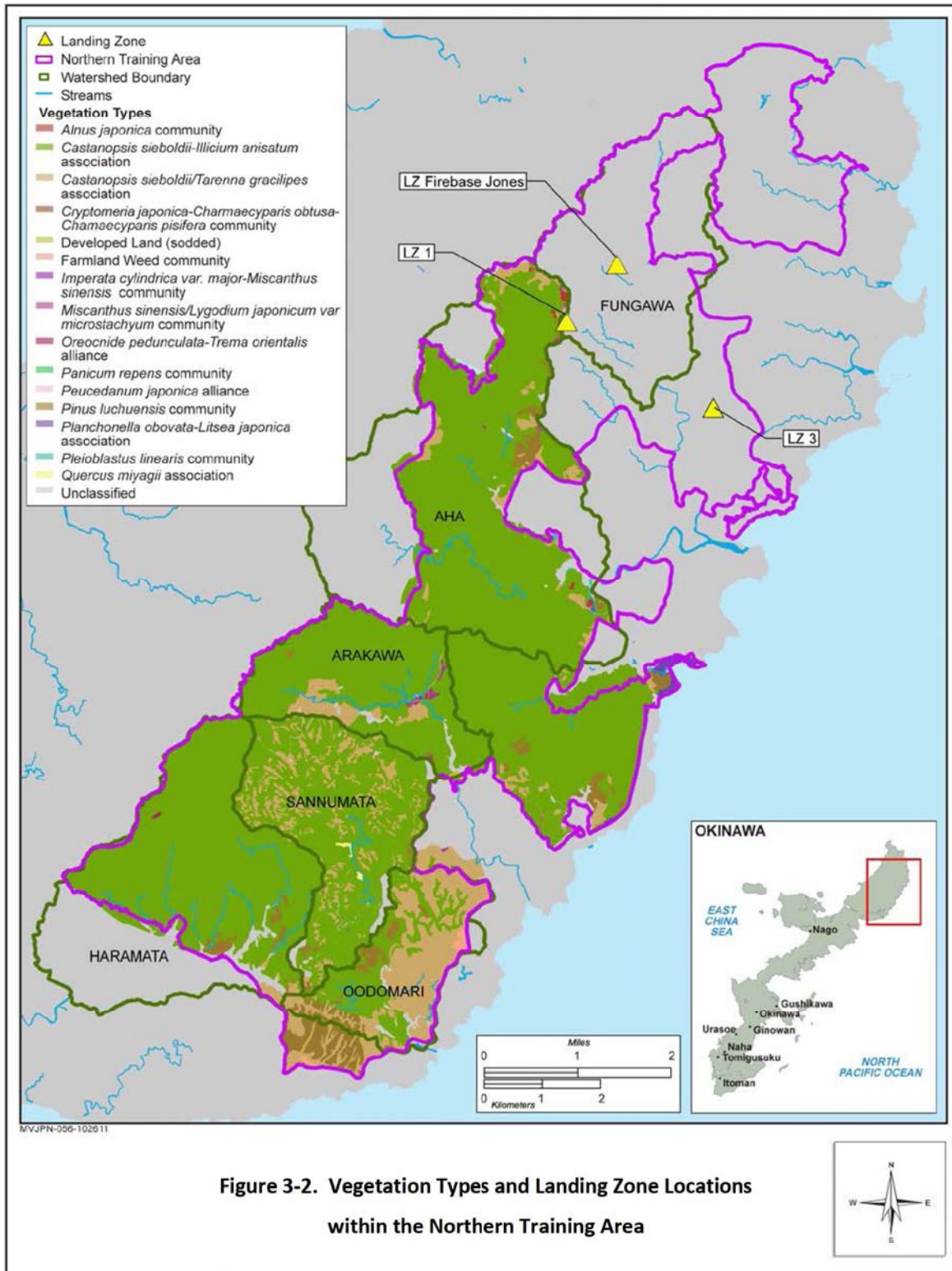


sieboldii-*Tarenna gracilipes* association as the main vegetation type. Additional vegetation types included *Pinus luchuensis* community, a secondary forest, and the primary forest *Castanopsis sieboldii*-*Illicium anisatum* association (Table 3-3). Detailed vegetation maps of each LZ in the NTA are in Appendix A, Figures 1-7 through 1-9.

Table 3-3. Vegetation Types at Landing Zones within the Northern Training Area

Landing Zone	Vegetation Communities with Greatest Coverage ¹	Other Vegetation Communities ¹
LZ 1	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association	<i>Pinus luchuensis</i> community <i>Leucaena leucocephala</i> / <i>Miscanthus sinensis</i> community
LZ 3	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association	Developed Land (cleared)
LZ Firebase Jones	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association	<i>Castanopsis sieboldii</i> / <i>Illicium anisatum</i> association Developed Land (cleared)

¹Community Structural and Compositional Characteristics in Table 3-1.



3.1.3 Central Training Area

The CTA consists of approximately 7,002 ha and contains a mix of vegetation and urban development. The vegetation surrounding most LZs in the CTA is forested. The CTA contains more diversity in vegetation communities than the NTA, most likely due to additional vegetation communities resulting from disturbance. There were 21 LZs surveyed within the CTA for vegetation and Protected/Red List species (Figures 1-1 and 3-3). Disturbed vegetation types were observed at all 21 surveyed locations including secondary forests, shrublands, and developed lands. Secondary forest was found to be the most frequent main vegetation type including the *Psychotria rubra-Schima wallidhii ssp. liukuensis* community, *Castanopsis sieboldii-Tarena gracilipes* association, and *Pinus luchuensis* community. Other types of vegetation included developed land, pasture land, and weed communities (Table 3-4). Detailed vegetation maps of each LZ in the CTA are in Appendix A, Figures 1-10 through 1-30.

Table 3-4. Vegetation Types at Landing Zones within the Central Training Area

Landing Zone	Vegetation Communities with Greatest Coverage ¹	Other Vegetation Communities ¹
Buzzard	<i>Castanopsis sieboldii/Tarena gracilipes</i> association	<i>Pinus luchuensis</i> community, <i>Casuarina</i> plantation, and Pasture Land
Cardinal	<i>Castanopsis sieboldii/Tarena gracilipes</i> association	Developed Land, Pasture Land
Crane	<i>Pinus luchuensis</i> community	Pasture Land, Farmland Weed community
Flamingo	<i>Panicum repens</i> community	Pasture Land, Farmland Weed community, <i>Pinus luchuensis</i> community, and <i>Psychotria rubra - Schima wallidhii ssp. Liukuensis</i> community
Gander	<i>Castanopsis sieboldii/Tarena gracilipes</i> association	Developed Land (cleared) Open Water
Goose	<i>Castanopsis sieboldii/Tarena gracilipes</i> association	Pasture Land
Heron	<i>Pinus luchuensis</i> community	<i>Pleioblastus linearis</i> community, , Developed Land (residential and commercial), and Open Water
Kin Blue	<i>Leucaena leucocephala</i> community	<i>Casuarina</i> plantation, <i>Pandanus odoratissimus</i> community, <i>Ipomea pes-capre/Thurea involute</i> community, Pasture Land, and Open Water
Kin Red	Developed Land (residential or commercial)	<i>Leucaena leucocephala/Miscanthus sinesis</i> community, Open Water
Kin Red (Alt.)	Developed Land (residential or commercial)	<i>Leucaena leucocephala/Miscanthus sinesis</i> community, <i>Pandanus odoratissimus</i> community, <i>Casuarina</i> plantation, and Open Water
Maggie	<i>Psychotria rubra - Schima wallidhii ssp. Liukuensis</i> community	Developed Land
Petrel	<i>Psychotria rubra - Schima wallidhii ssp. Liukuensis</i> community	<i>Castanopsis sieboldii/Tarena gracilipes</i> association and Developed land (cleared)
Phoenix	<i>Psychotria rubra - Schima wallidhii ssp. Liukuensis</i> community	<i>Leucaena leucocephala/Miscanthus sinesis</i> community, <i>Macaranga tanarius</i> community, Pasture Land, and Open Water
Rail	<i>Quercus miyagii</i>	<i>Leucaena leucocephala/Miscanthus sinesis</i> community, <i>Casuarina</i> plantation, and Pasture Land
Raven	<i>Psychotria rubra - Schima wallidhii ssp. Liukuensis</i> community	<i>Pinus luchuensis</i> community, Developed Land, and Farmland Weed community
Rook	<i>Pinus luchuensis</i> community	<i>Castanopsis sieboldii/Tarena gracilipes</i> association, Pasture Land, and Open Water
Swallow	<i>Castanopsis sieboldii/Tarena gracilipes</i> association	<i>Pinus luchuensis</i> community, <i>Casuarina</i> plantation, Developed land, and Open Water
Swan	Pasture Land	<i>Trema orientalis/Oreocnide pedunculata</i> alliance, Open Water, <i>Pandanus odoratissimus</i> community, Natural Bare Land, <i>Pinus luchuensis</i> community
Tern	<i>Psychotria rubra - Schima wallidhii ssp. Liukuensis</i> community	<i>Castanopsis sieboldii/Tarena gracilipes</i> association, Developed Land
Turkey	<i>Psychotria rubra - Schima wallidhii ssp. Liukuensis</i> community	<i>Pinus luchuensis</i> community, <i>Casuarina</i> plantation, Developed Land (cleared), and Open Water
Wren	<i>Psychotria rubra - Schima wallidhii ssp. Liukuensis</i> community	<i>Castanopsis sieboldii/Tarena gracilipes</i> association, <i>Pleioblastus linearis</i> community, and Developed Land

¹Community Structural and Compositional Characteristics in Table 3-1.

3.1.4 Administrative Area

Five Administrative LZs occur within the developed sections of Marine Corps Air Station Futenma, Camp Foster, Camp Kinser, Camp Courtney, and Camp Schwab situated in the southern half of Okinawa (Figure 1-1 and 3-4). All of the existing five Administrative LZs are substantially developed and contain landing pads constructed of impervious surfaces. These pads are surrounded by grass and landscaping, as well as, secondary forest communities.

The main vegetation type observed at all LZs within Administrative areas, except LZ Kinser 1, was Developed Land (residential and commercial). Areas categorized as Developed Land (residential and commercial) are located within DoD-managed lands and are comprised of existing facilities used for administrative purposes. Pasture land was the main vegetation type at LZ Kinser 1. All five LZ survey areas contained secondary forest and additional vegetation types including *Macaranga tanarius* community and *Psychotria rubra* - *Schima wallidhii* ssp. *liukuensis* community (Table 3-5). Detailed vegetation maps of each LZ in Administrative areas are in Appendix A, Figures 1-31 through 1-35.

Table 3-5. Vegetation Types at Landing Zones within Administrative Areas

Landing Zone	Vegetation Communities with Greatest Coverage ¹	Other Vegetation Communities ¹
Courtney	Developed Land (residential and commercial)	<i>Leucaena leucocephala/Miscanthus sinensis</i> community, <i>Macaranga tanarius</i> community
Futenma VIP	Developed Land (residential and commercial)	<i>Macaranga tanarius</i> community
Kinser 1	Pasture Land	<i>Macaranga tanarius</i> community, <i>Ficus microparpa</i> - <i>Ficus virgata</i> community, and Developed Land (residential and commercial)
Plaza	Developed Land (residential and commercial)	<i>Macaranga tanarius</i> community, <i>Psychotria manillensis</i> - <i>Cinnamomum pseudo-ped</i> community
Schwab 3	Developed Land (residential and commercial)	<i>Psychotria rubra</i> – <i>Schima wallidhii</i> ssp. <i>liukuensis</i> community

¹Community Structural and Compositional Characteristics in Table 3-1.

3.2 Red List Species at the LZs

There were 155 Red List species found in this survey. These included 69 species of vascular plants, a single species of large algae, 5 species of mammals, 20 species of birds, 7 species of reptiles, 8 species of amphibians, 21 species of insects, 3 species of spiders, 18 species of land snails, and 3 species of crustaceans.

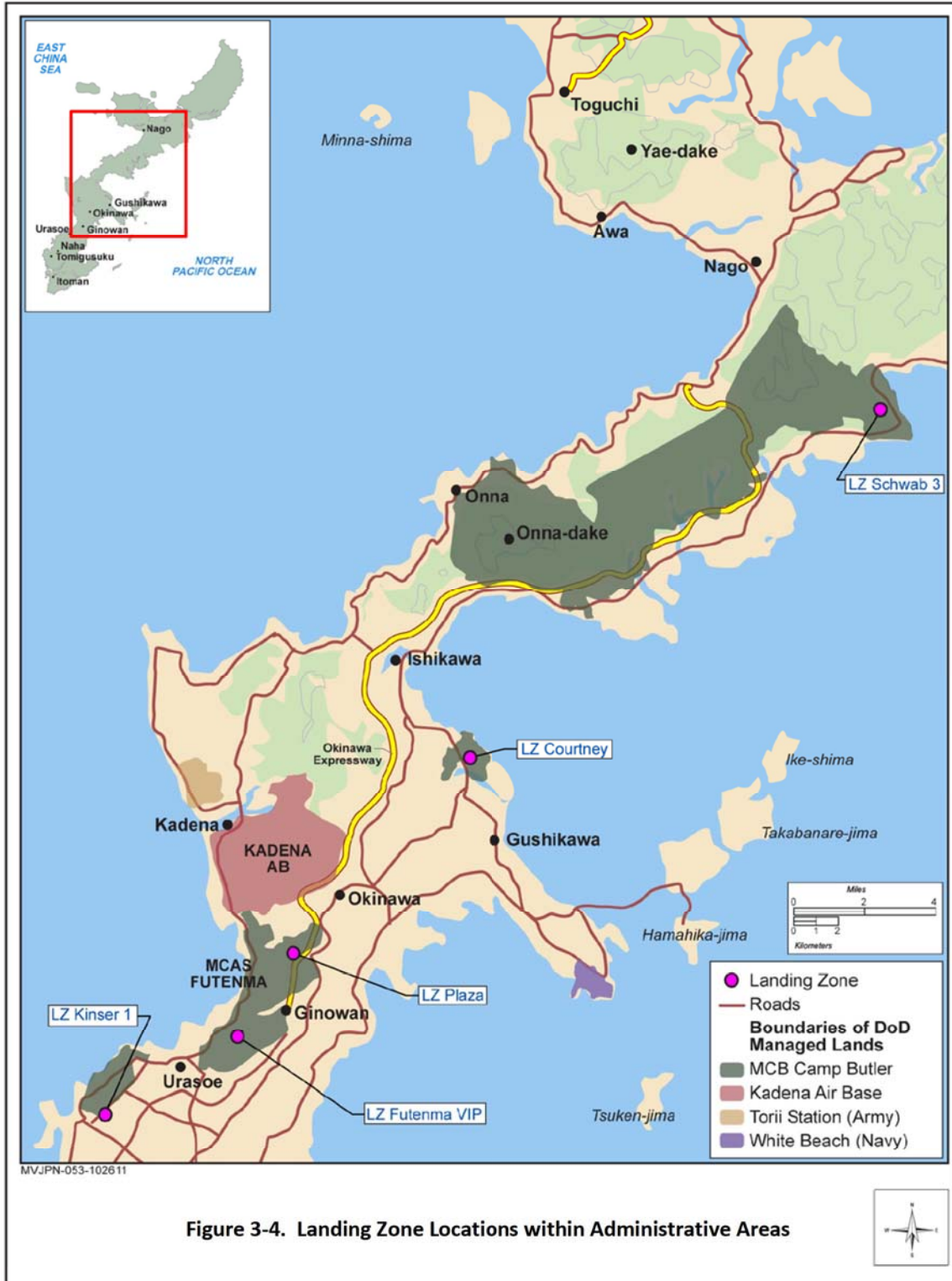


Figure 3-4. Landing Zone Locations within Administrative Areas

3.2.1 *Ie Shima Landing Zones*

Wildlife species richness on Ie Shima in general is poor due to the cultivation of crops and the development of most areas on the island (MCB Camp Butler 2009). However since Okinawa, including Ie Shima, is situated along migratory bird routes, avian species richness on the island is high. Vegetation at the ISTF consists of highly disturbed pasture land and offers minimal habitat to terrestrial wildlife present there. Red List species observed at Ie Shima were primarily bird and land snail species (Table 3-6). Due to existing maintenance of the LZs on Ie Shima, the area offers minimal suitable habitat for terrestrial mammal, reptile, and amphibian species. Detailed species listings found at each LZ on Ie Shima are found in the Data Tables section, Tables A, B(1), and B(2). The location of each Red List species observed can be found in Appendix A, Figure 3-1 through 3-6.

Table 3-6. Red List Species at Landing Zones on Ie Shima

Landing Zone	Number of Red Listed Species Observed by Class	Total Number of Red Listed Species Observed ¹
LHA/LHD	Birds: 1 Land Snails: 1	2
Coral Runway	Vascular Plants: 1 Birds: 3 Land Snails: 1	5
Sling Load	Vascular Plants: 1 Birds: 3 Land Snails: 1	5
Sling Load Alternative	Birds: 3 Land Snails: 1 Insects: 1	5
VIP Helipad	Vascular Plants: 1 Mammals: 1 Birds: 3 Land Snails: 1	6
Drop Zone	Birds: 2 Land Snails: 2 Reptiles: 1	5

¹Appendix A, Figures 3-1 through 3-6 show observed Red Listed Species locations.

3.2.2 *Northern Training Area*

Wildlife found within the NTA is abundant and diverse due to the extensive natural forest areas including mature *Castanopsis sieboldii*-dominated forest and available water resources. An average of over 500 fauna species were previously recorded in each watershed associated with this area, and over 45 Red List species were observed at each LZ surveyed as part of this Natural Resource Report. Red List reptile and amphibian species are more abundant in the NTA than other areas on Okinawa due to the numerous rivers and streams that offer suitable habitat for these species (Table 3-7). Overall, LZs in the NTA contained more Red List species than any other area surveyed as part of this Natural Resource Report. Detailed species listings found at each LZ in the NTA are found in the Data Tables section, Tables A, B(1), and B(2). The location of each Red List species observed can be found in Appendix A, Figures 3-7 through 3-9(2).

Table 3-7. Red List Species at Landing Zones within the Northern Training Area

Landing Zone	Number of Red Listed Species Observed by Class	Total Number of Red Listed Species Observed ¹
LZ 1	Vascular Plants: 10 Mammals: 2 Birds: 8 Land Snails: 9 Reptiles: 1 Amphibians: 4 Insects: 7 Spiders: 1	46
LZ 3	Vascular Plants: 14 Mammals: 2 Birds: 8 Land Snails: 5 Reptiles: 2 Amphibians: 6 Insects: 6 Spiders: 2 Crustaceans: 2	47
LZ Firebase Jones	Vascular Plants: 17 Mammals: 2 Birds: 8 Land Snails: 7 Reptiles: 3 Amphibians: 3 Insects: 7 Spiders: 2	49

¹Appendix A, Figures 3-1 through 3-6 show observed Red Listed Species locations.

3.2.3 Central Training Area

The CTA is forested in many areas, but there have been higher levels of previous disturbance in these areas than in the natural forests of the NTA. However, they still present large areas of suitable habitat for wildlife. Wildlife found within the CTA is abundant in remote areas where dominated by large tracts of forest and with abundant undisturbed water resources such as streams. An average of over 400 fauna species was previously recorded in the three watersheds surveyed. The number of Red List species was significantly lower in areas such as LZ Kin Red and LZ Swan, which are located in developed areas that offer minimal habitat to wildlife. Areas surrounded by large tracts of forest, which offer less disturbed habitat, such as LZ Goose and LZ Flamingo, had much higher occurrences of Red List species (Table 3-8). Detailed species listings found at each LZ in the CTA are found in the Data Tables section, Tables A, B(1), and B(2). The location of each Red List species observed can be found in Appendix A, Figures 3-10(1) through 3-30(2).

Table 3-8. Red List Species at Landing Zones within the Central Training Area

Landing Zone	Number of Red Listed Species Observed by Class	Total Number of Red Listed Species Observed ¹
Buzzard	Vascular Plants: 5 Mammals: 2 Birds: 6 Land Snails: 2 Reptiles: 1 Amphibians: 3 Insects: 3 Spiders: 2	24
Cardinal	Vascular Plants: 3 Large Algae: 1 Land Snails: 3 Reptiles: 2 Amphibians: 2 Insects: 1 Spiders: 2	14
Crane	Vascular Plants: 8 Mammals: 2 Birds: 3 Land Snails: 5 Reptiles: 1 Amphibians: 2 Insects: 4 Spiders: 1	26
Flamingo	Vascular Plants: 15 Mammals: 1 Birds: 6 Land Snails: 2 Reptiles: 1 Insects: 3 Spiders: 2	30
Gander	Vascular Plants: 3 Mammals: 1 Birds: 1 Land Snails: 6 Reptiles: 2 Amphibians: 2 Insects: 3 Spiders: 2	20
Goose	Vascular Plants: 8 Mammals: 1 Birds: 5 Land Snails: 6 Reptiles: 1 Amphibians: 2 Insects: 9 Spiders: 2	44
Heron	Vascular Plants: 10 Mammals: 1 Birds: 5 Land Snails: 2 Reptiles: 1 Amphibians: 1 Insects: 9	23
Kin Blue	Vascular Plants: 1 Mammals: 1 Birds: 3 Land Snails: 2 Reptiles: 1 Insects: 9	11
Kin Red	Birds: 1	1
Kin Red (Alt.)	Vascular Plants: 3 Mammals: 1 Birds: 2 Land Snails: 2 Reptiles: 1 Insects: 2	11
Magpie	Vascular Plants: 13 Birds: 2 Land Snails: 4 Reptiles: 1 Insects: 4 Spiders: 4	26
Petrel	Vascular Plants: 6 Mammals: 2 Birds: 4 Land Snails: 3 Reptiles: 1 Amphibians: 2 Insects: 3 Spiders: 2	23
Phoenix	Vascular Plants: 5 Mammals: 2 Birds: 4 Land Snails: 4 Reptiles: 2 Amphibians: 3 Insects: 3 Spiders: 2 Crustaceans: 1	26
Rail	Vascular Plants: 5 Mammals: 1 Birds: 3 Land Snails: 3 Reptiles: 2 Insects: 6 Spiders: 2	22
Raven	Vascular Plants: 9 Mammals: 1 Birds: 6 Land Snails: 2 Reptiles: 1 Amphibians: 2 Insects: 4 Spiders: 1	26
Rook	Vascular Plants: 4 Birds: 4 Land Snails: 7 Reptiles: 1 Amphibians: 1 Insects: 3 Spiders: 1	23
Swallow	Vascular Plants: 1 Birds: 5 Land Snails: 4 Reptiles: 1 Insects: 4 Spiders: 2	25
Swan	Mammals: 1 Birds: 2 Land Snails: 1 Reptiles: 1 Amphibians: 2 Crustaceans: 1	5
Tern	Vascular Plants: 14 Mammals: 2 Birds: 5 Land Snails: 3 Amphibians: 2 Insects: 4 Spiders: 2	31
Turkey	Vascular Plants: 15 Mammals: 1 Birds: 6 Land Snails: 1 Reptiles: 1 Insects: 4 Spiders: 1	31
Wren	Vascular Plants: 8 Mammals: 1 Birds: 6 Land Snails: 2 Reptiles: 1 Amphibians: 2 Insects: 5 Spiders: 1	26

¹Appendix A, Figures 3-1 through 3-6 show observed Red Listed Species locations.

3.2.4 Administrative Area

Surveyed LZs within Administrative Areas on Okinawa are located primarily on highly disturbed and developed DoD installations in the southern portion of Okinawa. Each of these installations are located on heavily urbanized military installations with little, if any, undisturbed habitat areas. A higher occurrence of Red List species occurred at LZs Schwab 3 and LZ Plaza where forest tracts were located near the LZs. The forests have higher levels of disturbance than the forests of the NTA, yet still offer suitable habitat to certain species. Areas around LZs Courtney, Futenma VIP, and Kinser 1 contain more highly disturbed, smaller tracts of forest and, therefore, contained lower overall numbers of Red List species (Table 3-9). Detailed species listings found at each LZ in Administrative Areas are found in the Data Tables section, Tables A, B(1), and B(2). The location of each Red List species observed can be found in Appendix A, Figure 3-31(1) through 3-35(2).

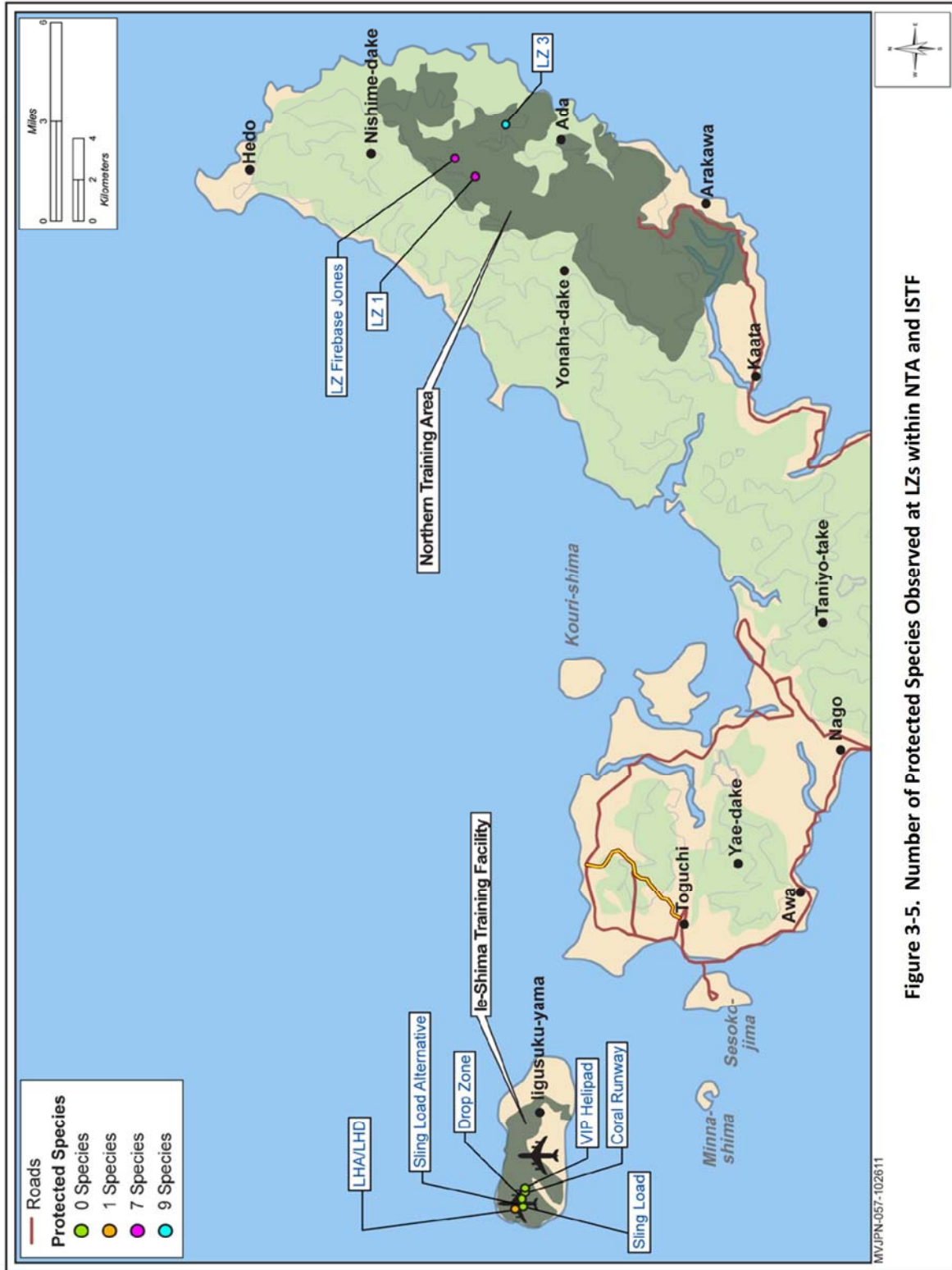
Table 3-9. Red List Species at Landing Zones within Administrative Areas

Landing Zone	Number of Red Listed Species Observed by Class	Total Number of Red Listed Species Observed ¹
Courtney	Mammals: 1 Land Snails: 1 Reptiles: 1 Spiders: 1	4
Futenma VIP	Vascular Plants: 3 Mammals: 1 Land Snails: 3 Birds: 1	8
Kinser 1	Vascular Plants: 2 Birds: 3 Land Snails: 3 Reptiles: 1	9
Plaza	Vascular Plants: 3 Mammals: 1 Birds: 3 Land Snails: 4 Reptiles: 1 Insects: 2 Spiders: 1	15
Schwab 3	Vascular Plants: 2 Mammals: 1 Birds: 3 Land Snails: 4 Reptiles: 1 Insects: 1 Spiders: 2	15

¹Appendix A, Figures 3-1 through 3-6 show observed Red Listed Species locations.

3.3 Protected Species Summary

There are 15 Protected Species found in the survey. They included: a single species of vascular plants, 3 species of birds, 2 species of reptiles, 4 species of amphibians, 2 species of insects, and 3 species of crustaceans. Habitats for all the protected species are shown at the LZs where found in Appendix A, Figures 4-1 through 4-21. Figures 3-5 through 3-7 show the number of occurrences of Protected Species at each surveyed LZ.



3.3.1 **Plants**

3.3.1.1 *Dendrobium okinawense*

This is an endemic species of Okinawa Island. It is a perennial that typically grows in deep forests as an epiphyte on trees of *Quercus miyagii* and *Castanopsis sieboldii* trees. Flowering occurs in late winter and early spring. This Protected Species was documented at LZ Firebase Jones in the NTA. The potential habitat area of this species is shown in Appendix A, Figure 4-4.

3.3.2 **Birds**

3.3.2.1 *Gallirallus okinawae*

This endemic rail species of Okinawa Island feeds on insects, land snails and crustaceans in the forest. It is mainly a ground-dwelling bird and roosts on tree branches at night. Nests are made on the ground during the breeding season, from May-July. In 2005 its numbers on Okinawa were estimated at 700. It is preyed upon by the non-native mongoose. This Protected Species was documented in three LZs in the NTA (LZ 1, LZ 3, and LZ Firebase Jones). The potential habitat area and breeding area of this species is shown in Appendix A, Figures 4-2, 4-3, and 4-4.



3.3.2.2 *Sapheopipo noguchii*

This endemic woodpecker species of Okinawa Island requires a habitat of trees at least 30 years old, with tall trees more than 20 centimeters in diameter. It feeds on insects and worms found in trees, and ants and grasshoppers on the ground. Nesting occurs from late February through May. In 1997 its numbers on Okinawa were estimated at 320 to 390. This Protected Species was documented in three LZs in the NTA (LZ 1, LZ 3, and LZ Firebase Jones). The potential habitat area and breeding area is shown in Appendix A, Figures 4-2, 4-3, and 4-4.

3.3.2.3 *Erithacus komadori namiyei*

This bird subspecies is present in the northern part of Okinawa and inhabits deep forests. It feeds on insects and oligochaete worms on the ground, and small insects in trees. Its habitat is primary forest.



The breeding season begins April and last through June. This Protected Species was documented in three LZs in the NTA (LZ 1, LZ 3, and LZ Firebase Jones). The potential habitat area and breeding area is shown in Appendix A, Figures 4-2, 4-3, and 4-4.

3.3.3 **Reptiles**

3.3.3.1 *Geoemyda japonica*

This turtle species is distributed on Okinawa Island, Tokashiki Island and Kume Island. It is a small turtle with a shell length that reaches about 15 centimeters. Its habitat is primary forest. It feeds on insects,

oligochaete worms, and land snails. The breeding season begins April and lasts through June. This Protected Species was documented in three LZs in the NTA (LZ 1, LZ 3, and LZ Firebase Jones). The potential habitat area and breeding area of this species is shown in Appendix A, Figures 4-2, 4-3, and 4-4.

3.3.3.2 *Goniurosaurus kuroiwaie kuroiwaie*

This gecko species distribution is Okinawa Island, Kourijima Island, and Sesokojima Island. It inhabits lowland to mountains forests, and is most common in woods in limestone coast regions with many caves. This Protected Species was documented in LZ 1 in the NTA. The potential habitat and breeding area of this species is shown in Appendix A, Figure 4-2.

3.3.4 **Amphibians**

3.3.4.1 *Echinotriton andersoni*

This endemic salamander species, commonly known as Anderson's alligator newt, is distributed on Okinawa and several other Japanese islands. It inhabits forests of hilly and mountainous areas and breeds in shaded, still waters such as ponds and temporary pools, or under fallen leaves with in these forests. The adult is terrestrial, and eggs are laid on land in one or several clutches, but the larvae develop in water, including such areas as temporary pools of water on forest roads. The breeding season for the species is November through May. This Protected Species was documented at 13 LZs: LZ 1, LZ 3, LZ Firebase Jones in the NTA; LZ Buzzard, LZ Cardinal, LZ Crane, LZ Gander, LZ Goose, LZ Petrel, LZ Phoenix, LZ Rail, LZ Raven, LZ Tern and LZ Wren in the CTA. The potential habitat and breeding area of this species is shown in Appendix A, Figures 4-2, 4-3, 4-5, 4-6, 4-7, 4-8, 4-9, 4-12, 4-13, 4-14, 4-15, 4-17 and 4-18.



3.3.4.2 *Limnonectes namiyei*

This endemic frog species is distributed in the northern part of Okinawa Island. Its habitat includes streams and swamps in primary forest. It feeds mainly on crustaceans in the water. The breeding season is June through August. This Protected Species was documented in LZ 3 in the NTA. The potential habitat and breeding area of this species is shown in Appendix A, Figure 4-3.

3.3.4.3 *Odorrana ishikawae*

This frog species is distributed on Okinawa Island and Amami Island. Its habitat is streams and swamps in the primary forest. It feeds primarily on crustaceans in water. The breeding season is January through February. This Protected Species was documented in LZ 3 in the NTA. The potential habitat and breeding area of this species is shown in Appendix A, Figure 4-3.

3.3.4.4 *Babina holsti*

This frog species is distributed on the northern part of Okinawa Island and Tokashiki Island. Its habitat includes streams and swamps in primary forest. It feeds on crustaceans, land snails, and insects. The breeding season is July through September. This Protected Species was documented in LZ 3 and LZ Firebase Jones in the NTA. The potential habitat and breeding area of this species is shown in Appendix A, Figure 4-3 and 4-4.

3.3.5 *Insects*

3.3.5.1 *Kallima inachus eucerca*



This species, commonly known as the leaf butterfly, is distributed in Okinawa Island, Ishigaki Island, and Iriomote Island. Adults feed on the juice of ripe fruits and trees. The larvae feed on foliage of *Strobilanthes glandulifer* and *Strobilanthes tashiroi*. The breeding season is year-round. This Protected Species was documented in two LZs in the NTA (LZ 1 and LZ Firebase Jones). The potential habitat and breeding area of this species is shown in Appendix A, Figures 4-2 and 4-4.

3.3.5.2 *Polyura eudamippus weismanni*

This butterfly is present on Okinawa Island where it is at the northern limit of the species distribution. It feeds on the juice of ripe fruits and trees, and on mammal's fecal material. The larvae feed on leaves of *Celtis boninensis* and *Rhamnella franguloides*. The breeding season is April through October on Okinawa Island. This Protected Species was documented at two LZs. One was in the CTA, LZ Goose, and the other was in the Administrative Area at LZ Plaza. The potential habitat and breeding area of this species is shown in Appendix A, Figures 4-9 and 4-21.

3.3.6 *Crustaceans*

The history of the designation of hermit crabs (*Coenobita* spp.) as a protected species is pertinent to discussion of these species. The Government of Japan decided that the land hermit crab (Okayadokari) was a Natural Monument species in 1970. At that time Okinawa was not an administrative area of the Japanese Government. Consequently, the land hermit crab was known only from Ogasawara Islands in Japan at that time. In May 1972 Okinawa became Okinawa Prefecture, a part of Japan. At that time some endemic species of Okinawa Island or the Ryukyu archipelago were added as Natural Monument species. Despite the abundance of the land hermit crab species, particularly in coastal areas of Okinawa Prefecture, the Government of Japan still included all land hermit crab species as Natural Monument species.

3.3.6.1 *Coenobita rugosus*

This Protected Species was documented in two LZs in the CTA (LZ Kin Red Alt. and LZ Phoenix). The potential habitat and breeding area of this species is shown in Appendix A, Figures 4-11 and 4-13.

3.3.6.2 *Coenobita purpureus*

This Protected Species was documented in two LZs in the CTA (LZ Kin Blue and LZ Swan). The potential habitat and breeding area of this species is shown in Appendix A, Figures 4-10 and 4-16.



3.3.6.3 *Coenobita cavipes*

This Protected Species was documented in six LZs; LHA/LHD on Ie Shima, LZ 3 in the NTA, LZs Gander and Kin Red (Alt.) in the CTA, and two LZs in the Administrative Area (LZ Courtney and LZ Kinser). The potential habitat and breeding area of this species is shown in Appendix A, Figures 4-1, 4-3, 4-8, 4-11, 4-19 and 4-20.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

In order to provide data in support of an environmental analysis for operating MV-22 aircraft, terrestrial flora and fauna surveys were conducted for 35 existing LZs situated on Okinawa and nearby Ie Shima. Survey areas for each LZ include the 30 m by 30 m (100 feet by 100 feet) LZ point and a surrounding buffer with a radius of 107 m (350 feet) beyond the landing point for a total of 5.0 ha (12.3 acres).

As shown on Table 4-1 below, the survey found 15 Protected Species including 4 National Endangered Species, 5 National Monument Species (3 are also endangered) and 7 Okinawa Prefecture Monument Species. These included: a single vascular plant species, three species of birds, two species of reptiles, four species of amphibians, two species of insects, and three species of crustaceans. No Protected Species of mammal, spider, or snail were detected. A total of 15 species were observed at 21 of the 35 LZs, with several species occurring at more than one LZ. Hermit crabs, a National Monument Species, were documented at 9 LZs dispersed in all four major areas on Okinawa, but 5 of these LZs occur within the CTA. An Okinawa Prefecture Monument Species, Anderson's Alligator Newt, occurs at 2 LZs in the NTA and 11 LZs in the CTA. Figures 4-2, 4-3, and 4-4 present the LZs with Protected Species within each LZ area. Survey results show the NTA includes a greater diversity of Protected Species while several CTA LZs support the same one or two species. The ISTF and the Administrative areas, as the locations subject to the most development and previous disturbance, contain few LZs where only one Protected Species was detected.

The survey found 155 Red List species, including: 69 species of vascular plants, a single large algae species, five species of mammals, 20 species of birds, seven species of reptiles, eight species of amphibians, 21 species of insects, three species of spiders, 18 species of land snails, and three species of crustaceans (see Tables A, B-1, and B-2 in the Appendices). Distribution of Red List species is very similar to the distribution of Protected Species observed. LZs that were located in undeveloped areas overall had a higher occurrence of Protected Species and Red List species than those in highly developed locations.

Table 4-1. Protected Species List

	Scientific Name	Japanese Name	English Name	LZ Name	Breeding Season	Protected Species			
						National Endangered Species	National Monument Species	Okinawa Prefecture Monument Species	
Flora	Vascular Plants	<i>Dendrobium okinawense</i>	Orchid	LZ Fire Base Jones		✓	-	-	
	Large Algae	-				-	-	-	
Fauna	Mammals	-				-	-	-	
	Birds	<i>Gallirallus okinawae</i>	Yanbaru kuina	Okinawa Rail	LZ 1, LZ 3, LZ Fire Base Jones	March – June	✓	✓	-
		<i>Sapheopipo noguchii</i>	Noguchigera	Pyer's Woodpecker	LZ 1, LZ 3, LZ Fire Base Jones	April – June	✓	✓	-
		<i>Erithacus komadori namiyei</i>	Akahige	Stejneger's Ryukyu Robin	LZ 1, LZ 3, LZ Fire Base Jones	April – June	✓	-	-
	Reptiles	<i>Geoemyda japonica</i>	Ryukyuyamagame	Ryukyu Black-breasted Leaf Turtle	LZ 1, LZ Fire Base Jones	April – June	-	✓	-
		<i>Goniurosaurus kuroiwaie kuroiwaie</i>	Kuroiwa tokagemodoki	Kuroiwa's Ground Gecko	LZ 1, LZ 3	April – July	-	-	✓
	Amphibians	<i>Echinotriton andersoni</i>	Iboimori	Anderson's Alligator Newt	LZ 1, LZ 3, LZ Buzzard, LZ Cardinal, LZ Crane, LZ Gander, LZ Goose, LZ Petrel, LZ Phoenix, LZ Rail, LZ Raven, LZ Tern, LZ Wren	November – May	-	-	✓
		<i>Limnonectes namiyei</i>	Namiegaeru	Namie's Frog	LZ 3	June – August	-	-	✓
		<i>Odorrana ishikawae</i>	Ishikawagaeru	Ishikawa's Frog	LZ 3	January – February	-	-	✓
	Insects	<i>Babina holsti</i>	Horusutogaeru	Holst's Frog	LZ 3, LZ Fire Base Jones	July – September	-	-	✓
<i>Kallima inachus eucerca</i>		Konohachou	Leaf Butterfly	LZ 1, LZ Fire Base Jones	All Year	-	-	✓	
<i>Polyura eudamippus weismanni</i>		Futaachou	Two Tailed Butterfly	LZ Goose, LZ Plaza	April – October	-	-	✓	
Spiders	-	-				-	-	-	
Land Snails	-	-				-	-	-	
Crustaceans	<i>Coenobita purpureus</i>	Okayadokari	Hermit Crab	LZ 3, FMPLP, LZ Gander, LZ Kin Blue, LZ Kin Red (Alt), LZ Phoenix, LZ Swan, LZ Courtney, LZ Kinser 1	May - August	-	✓	-	

4.2 Recommendations

Specific recommendations for the conservation of Protected Species and other rare species and their habitats are discussed below. A brief discussion of forests within the training areas (primarily NTA) is followed by specific recommendations. These recommendations apply to ongoing activities and use of the LZs and are not specific to the impacts of operating MV-22s.

As described in the document *Biological Inventory and Management Needs Assessment for the Northern Training Area (NTA) and Central Training Area (CTA) for MCB Butler in Okinawa, Japan* (Kaneshiro and Iwahashi 2000), the forests within the NTA comprise some of the most important natural resources in all of Japan. Their study documented 2,828 species, of which 8 percent were either listed as Endangered or Threatened. They consider the Yanbaru forest a hotspot of biological diversity. In their study, they state that the Nature Conservation Society of Japan has designated forests dominated by *Castanopsis sieboldii* which are more than 30 years old as “natural forests” and strongly recommends their preservation. In general, forests dominated by the natural growth of *Castanopsis sieboldii* in particular are considered the best habitat for many species. As such, it is recommended that these forests should be disturbed as little as possible. Specific recommendations are as follows:

- Avoiding any clearing of vegetation not essential to current or proposed training missions is recommended. These activities create or expand gaps in the forest ecosystem, or contribute to fragmentation of the forest and can severely impact the microhabitats of endangered species. This type of impact can be particularly important in areas designated as natural forests (refer to map showing the age of the Yanbaru Forests in Appendix I of Kaneshiro and Iwahashi, 2000). Any clearing required to accommodate the training missions would require site approval and coordination with the installation environmental office.
- Avoid noise and vibrations to the extent possible during the breeding seasons of protected bird species listed in Table 4-1.
- Firebase Jones in the NTA is the most sensitive surveyed LZ ecologically due to its remoteness from public roads and the presence of excellent habitat. Vegetation clearing at this LZ in particular should be minimized.
- Awareness training is already provided to Marines conducting training operations at the LZs. Marines receive copies of “Environmental Pocket Guide for the Marine in the Field” for use in training areas in Okinawa, Japan. This pocket guide has a section specifically addressing natural resources and states “Do not damage or remove vegetation. No trees over 4 centimeters (1.5 inches) in diameter at 1.2 m (3.9 feet) above ground will be removed or cut without prior approval of the Environmental Affairs Branch.” This guide also includes photos of Protected Species and requires that no animal will be caught or killed. The Unit Environmental Representatives are also required to complete a Field Training Environmental Management form before conducting training exercises. Continuing to provide awareness training to Marines operating at LZs where Protected Species have been recorded or may occur would help to minimize any impacts to these species.

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TABLES

Table B-1. Floral Species Documented in the Survey at LZs and Status of Each Species

Species Number	Family	Japanese Name	Scientific Name	Protected Species		Red List Species	
				National Endangered	GoJ Red		Okinawa
Vascular plants							
V1	Psilotaceae	Matubaran	<i>Psilotum nudum</i>			NT	
V2	Selaginellaceae	Turu-katahiba	<i>Selaginella bififormis</i>			NT	NT
V3	Schizaeaceae	Kanzasi-warabi	<i>Schizaea dichotoma</i>			EN	EN
V4	Polypodiaceae	Takaurabosi	<i>Microsorium rubidum</i>			EN	VU
V5	Saururaceae	Hangeshou	<i>Saururus chinensis</i>				NT
V6	Polygonaceae	Natuno-unagitukami	<i>Persicaria dichotoma</i>				NT
V7	Polygonaceae	Hosobano-unagitukami	<i>Persicaria hastato-auriculata</i>				NT
V8	Caryophyllaceae	Hamatumekusa	<i>Sagina maxima</i>				DD
V9	Menispermaceae	Oo-tuzarafuzi	<i>Simomenium acutum</i>				NT
V10	Lauraceae	Kesunaduru	<i>Cassytha filiformis</i> var.			VU	VU
V11	Lauraceae	Nikkei	<i>Cinnamomum sieboldii</i>			NT	
V12	Saxifragaceae	Ryukyu-konterigi	<i>Hydrangea liukuensis</i>			VU	
V13	Rosaceae	Sima-kanememoti	<i>Photinia wrightiana</i>			VU	
V14	Rosaceae	Okinawa-uraziro-itigo	<i>Rubus utchinensis</i>				VU
V15	Euphorbiaceae	Siraki	<i>Sapium japonicum</i>				VU
V16	Celastraceae	Hariturumasaki	<i>Maytenus diversifolia</i>			NT	
V17	Rhamnaceae	Yaeyama-nekonotiti	<i>Rhamnella franguloides</i> var.			VU	
V18	Rhamnaceae	Ryukyu-kuroumemodoki	<i>Rhamnus ilukuensis</i>			NT	
V19	Theaceae	Mame-hisakaki	<i>Eurya emarginata</i> var.			VU	
V20	Melastomataceae	Kobano-miyama-nobotan	<i>Bredia okinawensis</i>			VU	VU
V21	Haloragidaceae	Nagabaarintougusa	<i>Haloragis chinensis</i>			EN	CR
V22	Ericaceae	Kerama-tutuzi	<i>Rhododendron scabrum</i>			VU	EN
V23	Ebenaceae	Ryukyukukokutan	<i>Diospyros egypt-walkeri</i>			NT	
V24	Symplocaceae	Miyama-sirobai	<i>Symplocos confusa</i>			VU	
V25	Lentibulariaceae	Inu-tanukimo	<i>Utricularia tenuicaulis</i>			NT	EN
V26	Lentibulariaceae	Mikawatanukimo	<i>Utricularia exoleta</i>			VU	VU
V27	Rubiaceae	Hetukanigaki	<i>Sinodina racemosa</i>				VU
V28	Campanulaceae	Tati-mizokakusi	<i>Labella alsinoides</i>			CR	EN
V29	Hydrocharitaceae	Marumi-subuta	<i>Blyxa aubertii</i>			VU	VU
V30	Hydrocharitaceae	Oomizuobako	<i>Ottelia alismoides</i>			VU	VU
V31	Triuridaceae	Hongousou	<i>Sciaphila japonica</i>			VU	EN
V32	Triuridaceae	Uematusou	<i>Sciaphila tosaensis</i>			VU	EN
V33	Gramineae	Oomatubasiba	<i>Aristida takeoi</i>			EN	
V34	Gramineae	Taiwan-asikaki	<i>Leersia hexandra</i>			NT	
V35	Cyperaceae	Ao-gouso	<i>Carex phacota</i>				EN
V36	Cyperaceae	Okinawa-himenakiri	<i>Carex sacrosancta</i> var. <i>tamakii</i>			NT	NT
V37	Cyperaceae	Misumii	<i>Eleocharis fistulosa</i>			EN	VU
V38	Cyperaceae	Tamaharii	<i>Eleocharis geniculata</i>				NT
V39	Cyperaceae	Tokusai	<i>Eleocharis ochrostachys</i>				VU
V40	Cyperaceae	Masikakui	<i>Eleocharis tetraquetra</i>				CR
V41	Cyperaceae	Yari-tentuki	<i>Fimbristylis ovata</i>			VU	
V42	Cyperaceae	Toranohanahige	<i>Rhynchospora brownii</i>				VU
V43	Eriocaulaceae	Suisha-hosikusa	<i>Eriocaulon nigrum</i> var.			CR	EN
V44	Philydraceae	Tanuki-ayame	<i>Philydrum lanuginosum</i>				VU
V45	Juncaceae	Igusa	<i>Juncus effusus</i> var. <i>decipiens</i>				EN
V46	Juncaceae	Kougazekishou	<i>Juncus leschenaultii</i>				VU
V47	Burmanniaceae	Hinanoshakujou	<i>Burmannia championii</i>				CR
V48	Orchidaceae	Rengyou-ebine	<i>Calanthe lyraglossa</i>			VU	VU
V49	Orchidaceae	Onaga-ebine	<i>Calanthe masuca</i>			VU	VU
V50	Orchidaceae	Tururan	<i>Calanthe triplicata</i>			VU	VU
V51	Orchidaceae	Tokusaran	<i>Cephalantheropsis gracilis</i>			NT	
V52	Orchidaceae	Okinawa-sekkoku	<i>Dendrobium okinawense</i>	Domestic Endangered		EN	CR
V53	Orchidaceae	Yuureiran	<i>Didymoplexis pallens</i>			NT	VU
V54	Orchidaceae	Edautiyagara	<i>Eulophia graminea</i>				VU
V55	Orchidaceae	Imoneyagara	<i>Eulophia zollingeri</i>			EN	VU
V56	Orchidaceae	Takatururan	<i>Galeola altissima</i>			CR	VU
V57	Orchidaceae	Kasinokiran	<i>Gastrochilus japonicus</i>			VU	VU
V58	Orchidaceae	Tosakameotoran	<i>Geodorum densiflorum</i>			EN	VU
V59	Orchidaceae	Daisagisou	<i>Habenaria dentata</i>			EN	EN
V60	Orchidaceae	Takasago-sagisou	<i>Habenaria formosana</i>				NT
V61	Orchidaceae	Ryukyusagiso	<i>Habenaria longidenticulata</i>			EN	VU
V62	Orchidaceae	Sirahigemuyouran	<i>Lecanorchis flavicans</i> var.			NT	
V63	Orchidaceae	Okinawa-muyouran	<i>Lecanorchis triloba</i>			NT	VU
V64	Orchidaceae	Bouran	<i>Luisia teres</i>			NT	NT
V65	Orchidaceae	Hozakihimeran	<i>Malaxis latifolia</i>			CR	EN
V66	Orchidaceae	Kandahimeran	<i>Malaxis kanda</i>			EN	CR
V67	Orchidaceae	Kakutyouran	<i>Phaius tankervilleae</i>			VU	EN
V68	Orchidaceae	Koutousiran	<i>Spathoglottis plicata</i>			VU	VU
V69	Orchidaceae	Kagerouran	<i>Zeuxine ayokuana</i>			NT	VU
Large Algae							
LA1	Hildenbrandiaceae	Tansul-benimadara	<i>Hildenbrandia rivularis</i>			NT	NT

NOTES:

There were no GoJ or Okinawa Prefecture Natural Monument Species observed.

Abbreviations	Categories
EX	Extinct
EW	Extinct in the Wild
CR+EN	Endangered Species
CR	Critically Endangered
EN	Endangered
VU	Vulnerable
NT	Near Threatened
DD	Data Deficient
LP	Threatened Local Population

Table B (2) Faunal Species Documented in the Survey at LZs and Status of the Species

Species Number	Family	Japanese name / English name	Scientific name	Protected Species			Red List Species	
				National	GoJ Monument	Okinawa Prefecture	GoJ Red List	Okinawa Prefecture Red
Mammals								
M1	Soricidae	W atase-zi-nezumi / W atase Shrew	<i>Cephaloscyllium</i>				NT	NT
M2	Prionodontidae	Oki-oko-koumori / Ryukyu Flying Fox	<i>Pteropus</i>				NT	NT
M3	Rhinophoridae	Okinawa-ko-kibagashira-koumori / Okinawa Little	<i>Rhinolophus</i>				EN	EN
M4	Vespertilionidae	A species of family Vespertilionidae	<i>Vespertilio</i>				CR or EN	CR or EN
M5	Suidae	Ryukyu-inoshishi / Ryukyu Wild Boar	<i>Sus scrofa</i>				DD	DD
Birds								
B1	Ardeidae	Chousagi	<i>Egretta intermedia</i>				NT	NT
B2	Acciptridae	Misago	<i>Pandion</i>				NT	VU
B3	Acciptridae	Ryukyu-tsumi	<i>Accipiter</i>				EN	NT
B4	Luridae	Mitsuzasa	<i>Larus</i>				NT	NT
B5	Bulidae	Yanbaru-kuiwa	<i>Gallinula</i>	Domestic	Endangered	Natural Monument	CR	EN
B6	Charadriidae	Shiro-chidori	<i>Charadrius</i>				EN	NT
B7	Glaucidae	Tsukame-chidori	<i>Glaucous</i>				VU	VU
B8	Laridae	Beni-uguisu	<i>Sterna</i>				VU	NT
B9	Laridae	Ko-uguisu	<i>Sterna</i>				VU	VU
B10	Strigidae	Ryukyu-konohazuki	<i>Otus</i>				NT	NT
B11	Strigidae	Ryukyu-ko-konohazuki	<i>Otus</i>				VU	VU
B12	Strigidae	Ryukyu-sobanaku	<i>Ninox</i>				NT	NT
B13	Alcedinidae	Ryukyu-aka-shoubin	<i>Haliyon</i>				NT	NT
B14	Alcedinidae	Kawaseri	<i>Alcedo</i>				NT	NT
B15	Psittidae	Noguchibana	<i>Spathopsis</i>	Domestic	Endangered	Special Natural	CR	CR
B16	Psittidae	Ryukyu-kojira	<i>Demoiselle</i>				NT	NT
B17	Campophagidae	Ryukyu-sanshoukui	<i>Pericrocotus</i>				NT	NT
B18	Turdidae	Honshu-uhaiya	<i>Turdus</i>	Domestic	Endangered	Natural Monument	EN	EN
B19	Monarchidae	Ryukyu-sanshoukou	<i>Tropiphone</i>				DD	DD
B20	Paridae	Anami-yamagata	<i>Parus</i>				NT	NT
Reptiles								
R1	Emydidae	Ryukyu-yama-gama / Ryukyu Black-breasted Leaf Turtle	<i>Geornis</i>			Natural Monument	VU	EN
R2	Eublepharidae	Kurowa-tokage-modoki / Ryukyu Ground Gecko	<i>Goniurosaurus</i>				VU	EN
R3	Gekkonidae	Okinawa-yamori	<i>Gekko</i>				NT	NT
R4	Agamidae	Okinawa-kinobori-tokage / Okinawan Tree Lizard	<i>Agalops</i>				VU	VU
R5	Scincidae	Okinawa-tokage / Ryukyu five-lined skink	<i>Eutropis</i>				NT	NT
R6	Scincidae	Barbar Tokage / Barbour's five-lined skink	<i>Plestiodon</i>				VU	VU
R7	Colubridae	Anami-takachibu / Anami O&S-scaled Snake	<i>Achilsons</i>				NT	NT
Amphibians								
A1	Salamandridae	Ito-imori / Anderson's Alligator Newt	<i>Echinotriton</i>				VU	VU
A2	Salamandridae	Siriken-imori / Sword-tailed Newt	<i>Cynops</i>				NT	NT
A3	Hyaliniae	Hallowell-ama-gaeru / Hallowell's Treefrog	<i>Hyla</i>				NT	NT
A4	Ranidae	Ryukyu-ka-gaeru / Ryukyu Brown Frog	<i>Rana</i>				NT	NT
A5	Ranidae	Nami-gaeru / Nami's Frog	<i>Limnodynastes</i>				Natural Monument	EN
A6	Ranidae	Isikawa-gaeru / Isikawa's Frog	<i>Odorrana</i>				Natural Monument	EN
A7	Ranidae	Hanasaki-gaeru / Okinawa Tip-nosed Frog	<i>Odorrana</i>				VU	EN
A8	Ranidae	Ito-gaeru / Ito's Frog	<i>Bombina</i>				Natural Monument	EN
Insects								
I1	Coenagrionidae	Hima-ito-tonbo	<i>Agriocnemis</i>				NT	DD
I2	Metagrionidae	Okinawa-tokage-tonbo	<i>Rhyacophila</i>				NT	NT
I3	Metagrionidae	Yanbaru-tokage-tonbo	<i>Rhyacophila</i>				NT	NT
I4	Gomphidae	Okinawa-otso-sanae	<i>Stylogomphus</i>				NT	NT
I5	Cordulegasteridae	Oki-yama	<i>Acidopogon</i>				NT	NT
I6	Cordulegasteridae	Yanbaru	<i>Chironomus</i>				NT	NT
I7	Cordulegasteridae	Ryukyu-tonbo	<i>Hemicordulia</i>				NT	NT
I8	Panorhiidae	Ryukyu-kuiki-gakiburi	<i>Sargana</i>				NT	NT
I9	Egialtinae	Madara-gakiburi	<i>Egialta</i>				NT	NT
I10	Pederidae	Yanbaru-kuragegumi	<i>Pederis</i>				NT	NT
I11	Rhaphidophoridae	Junguri-uma	<i>Rhaphidophora</i>				DD	DD
I12	Tropiduchidae	Tawara-hautwa-unka	<i>Tropiduchus</i>				NT	NT
I13	Cixiidae	Kurowa-temi	<i>Cixius</i>				VU	VU
I14	Cixiidae	Okinawa-midori-kambori	<i>Cixius</i>				NT	DD
I15	Cixiidae	Dohama-hamadara-ka	<i>Anophris</i>				NT	NT
I16	Heteroptera	Okinawa-hoshi-shimabokira	<i>Microsternum</i>				NT	NT
I17	Lygaeidae	Kawaka-otomi	<i>Arge</i>				NT	NT
I18	Nymphalidae	Suminagasi	<i>Dejania</i>				NT	NT
I19	Nymphalidae	Konoha-chou / Leaf Butterfly	<i>Kallima</i>				Natural Monument	NT
I20	Nymphalidae	Futao-chou / Twin Tail Butterfly	<i>Polyura</i>				Natural Monument	NT
I21	Lycaenidae	Ryukyu-saramei-janome	<i>Yponomeuta</i>				NT	NT
Spiders								
S1	Liphistidae	Okinawa-kimura-gumo	<i>Liphistius</i>				VU	VU
S2	Liphistidae	A species of family Liphistidae	<i>Liphistius</i>				VU	VU
S3	Chenidae	Kinobori-tokage-gumo	<i>Ummidia</i>				NT	NT
Insectivores								
I1	Hydrozoidae	Goma-oka-tanishi	<i>Geopsis</i>				NT	NT
I2	Cyclophoridae	Ryukyu-yama-tanishi	<i>Cyclophorus</i>				VU	NT
I3	Cyclophoridae	Kehada-yamatogai	<i>Japania</i>				NT	NT
I4	Cyclophoridae	Aomi-oka-tanishi	<i>Leptogomphus</i>				NT	NT
I5	Cyclophoridae	Hirao-akubira-gai	<i>Phyllorhiza</i>				NT	NT
I6	Diplommatidae	Ryukyu-goma-gai	<i>Diplommatina</i>				VU	VU
I7	Diplommatidae	Kusagami-goma-gai	<i>Diplommatina</i>				VU	VU
I8	Flammatidae	Nomi-gai	<i>Flammatina</i>				VU	VU
I9	Flammatidae	Kawabiki	<i>Flammatina</i>				NT	NT
I10	Flammatidae	Utsuhara-kisenagai-modoki	<i>Flammatina</i>				VU	VU
I11	Clevididae	Kinchaku-gaeru	<i>Lechaphandrus</i>				VU	VU
I12	Clevididae	Sakanuki-nomi-gaeru	<i>Selenogaster</i>				VU	VU
I13	Zonitidae	Okinawa-maimai	<i>Vidua</i>				NT	NT
I14	Herpessidae	Bekko-maimai	<i>Bekko</i>				DD	DD
I15	Camariidae	Okinawa-yamatata-maimai	<i>Sotuma</i>				VU	VU
I16	Camariidae	Yanbaru-maimai	<i>Sotuma</i>				VU	VU
I17	Bradybaenidae	Uroko-ka-maimai	<i>Asipha</i>				VU	EN
I18	Bradybaenidae	Itoman-maimai	<i>Asipha</i>				VU	VU
Crustaceans								
C1	Coenobitidae	Naki-oka-yadokari	<i>Coenobita</i>			Natural Monument	NT	NT
C2	Coenobitidae	Murasaki-oka-yadokari	<i>Coenobita</i>			Natural Monument	NT	NT
C3	Coenobitidae	Oka-yadokari / Hermit Crab	<i>Coenobita</i>			Natural Monument	NT	NT
C4	Sesamidae	Akate-gani	<i>Chromaster</i>				NT	NT
C5	Potamidae	Okinawa-gani	<i>Goniodactylus</i>				CR	CR
C6	Potamidae	Okinawa-minami-sawagani	<i>Candidolopomon</i>				NT	VU

Abbreviations Categories
 EX Extinct
 EW Extinct in the Wild
 CR-EN Critically Endangered
 CR Critically Endangered
 EN Endangered
 VU Vulnerable
 NT Near Threatened
 DD Data Deficient
 LP Threatened Local Population

APPENDIX A

MAPS



Figure 1.A LZ Survey Locations on Ie Shima

Ie Shima Vegetation

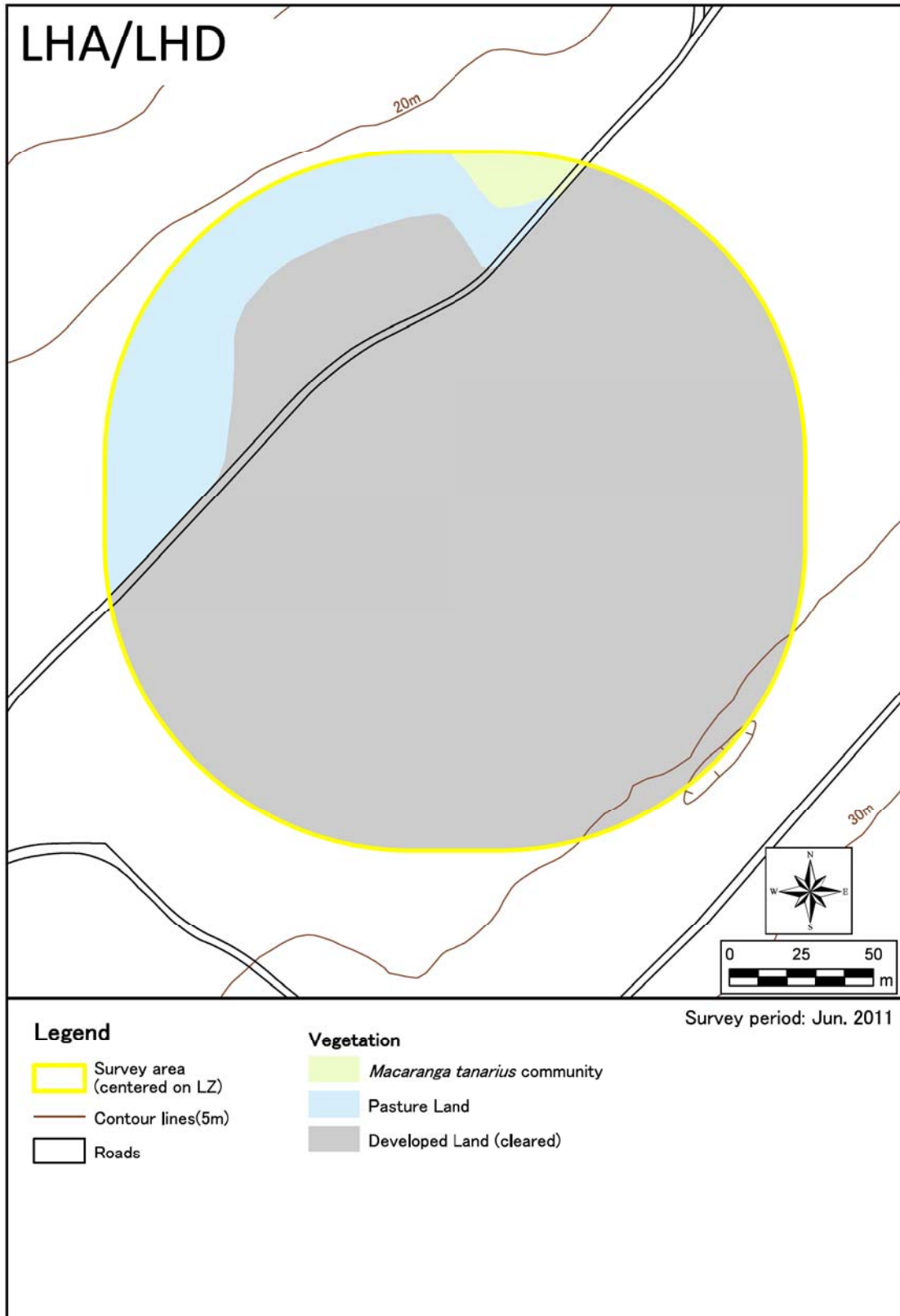


Figure 1-1 Locations of Vegetation Near LHA/LHD

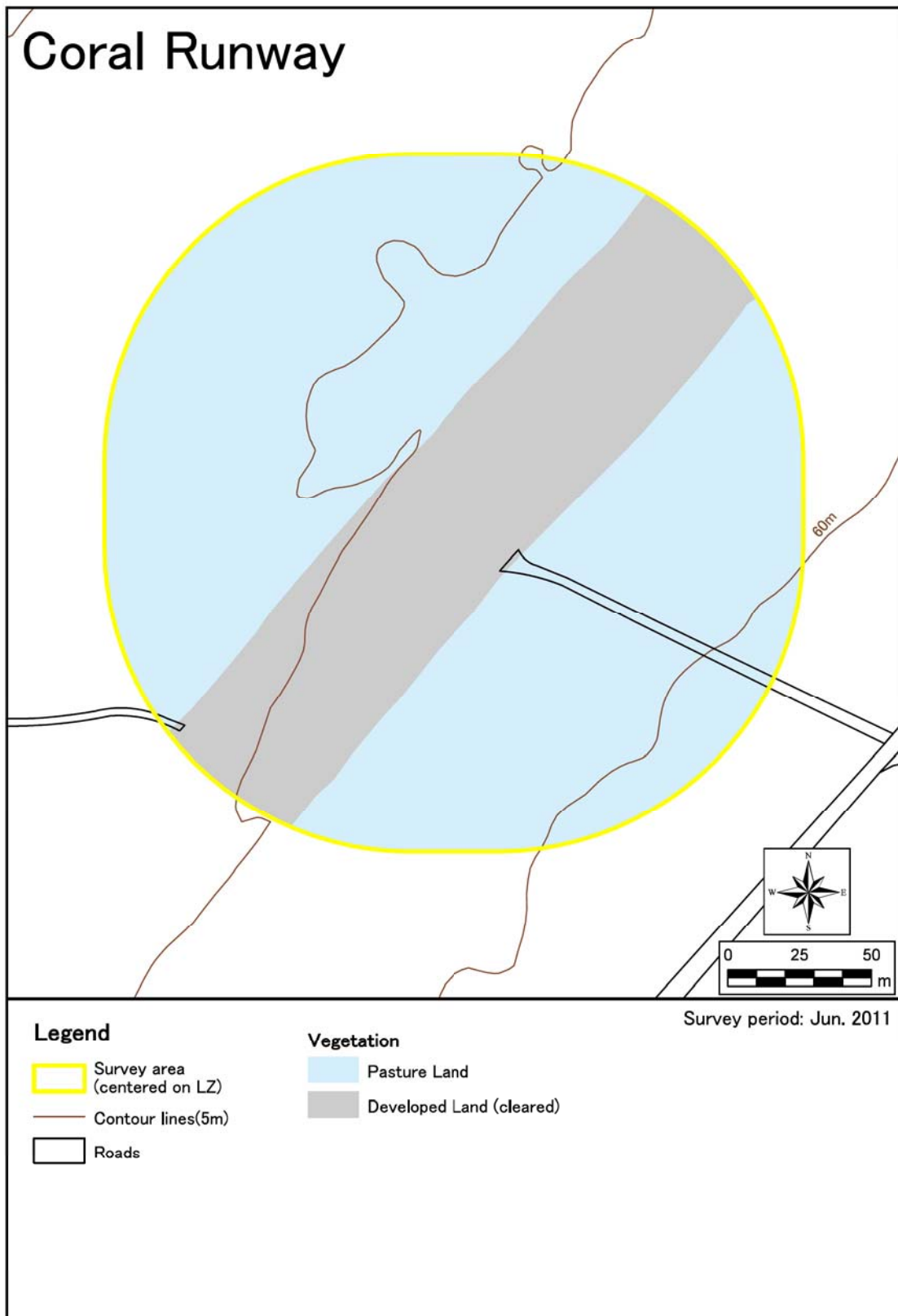


Figure 1-2 Vegetation Near Coral Runway

Ie Shima Vegetation

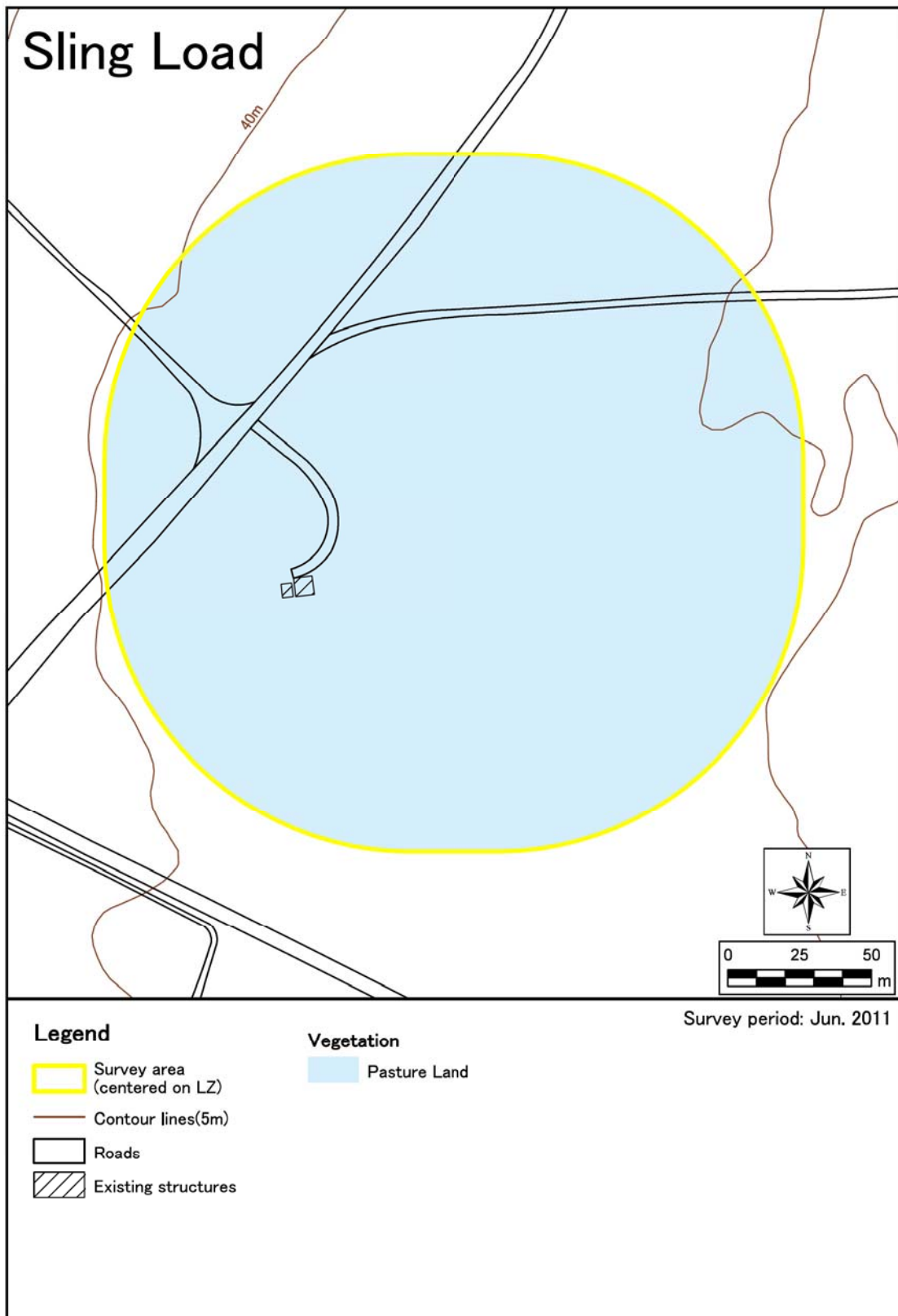


Figure 1-3 Vegetation Near Sling Load

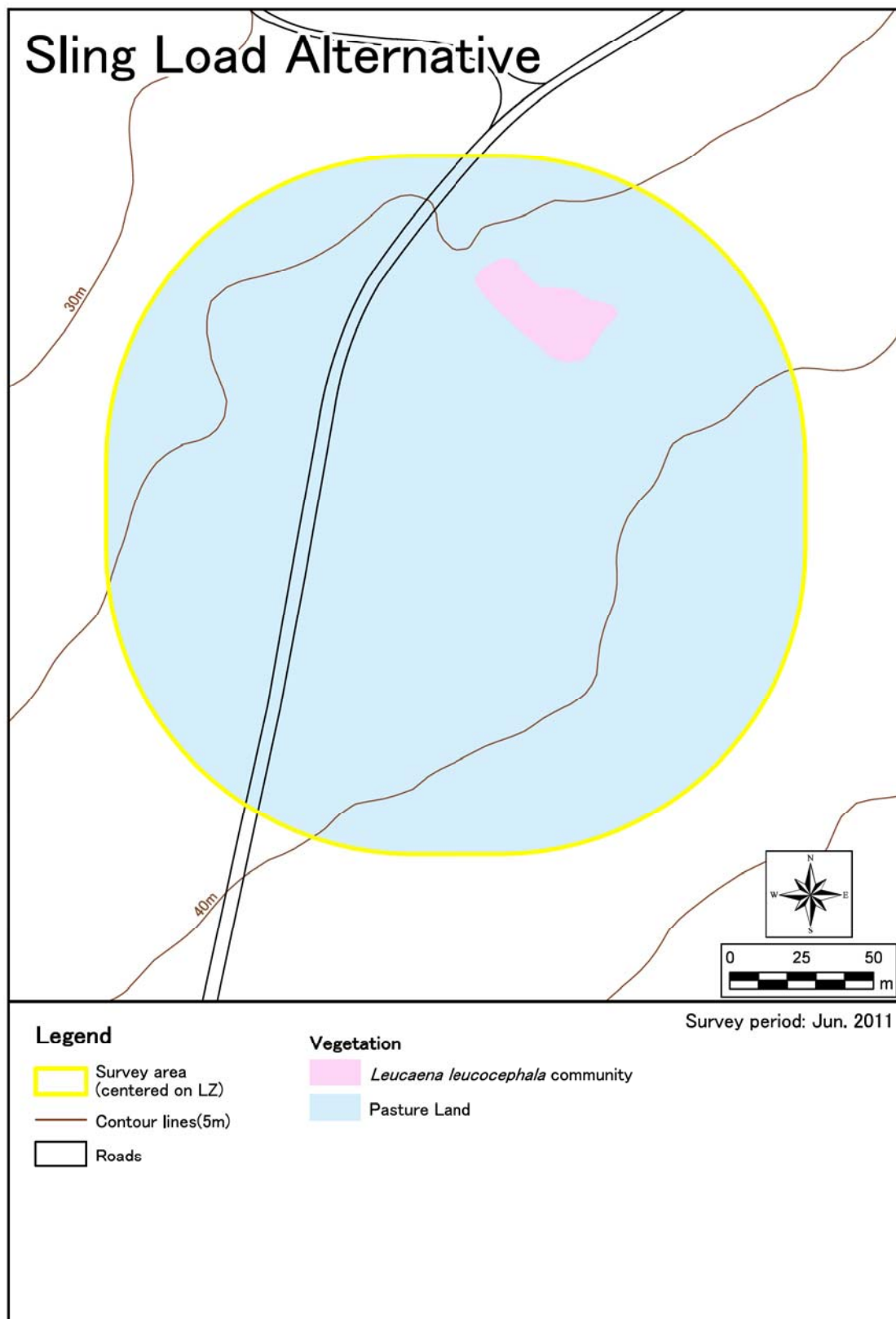


Figure 1-4 Vegetation Near Sling Load Alternative

Ie Shima Vegetation

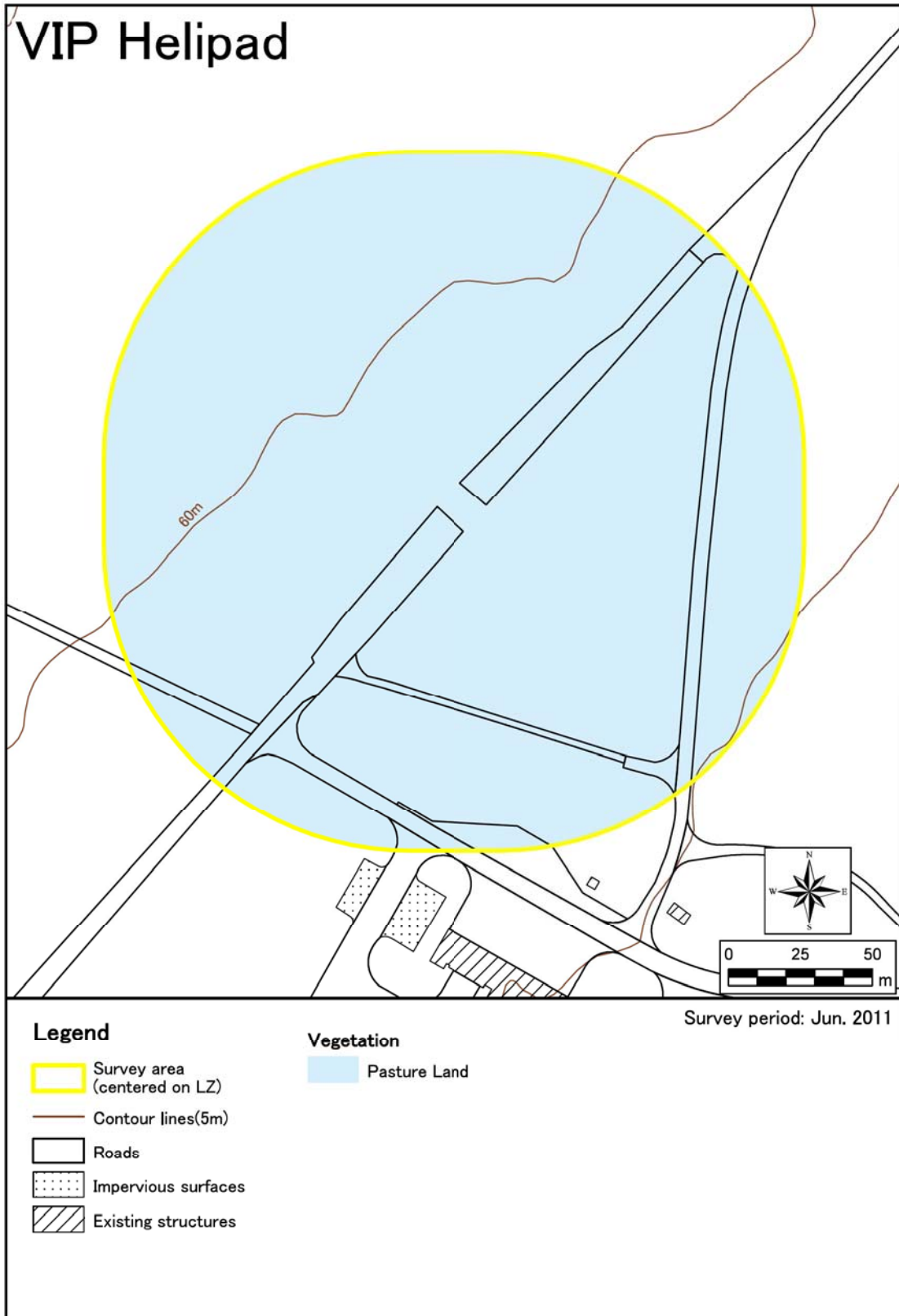


Figure 1-5 Vegetation Near VIP Helipad

Ie Shima Vegetation

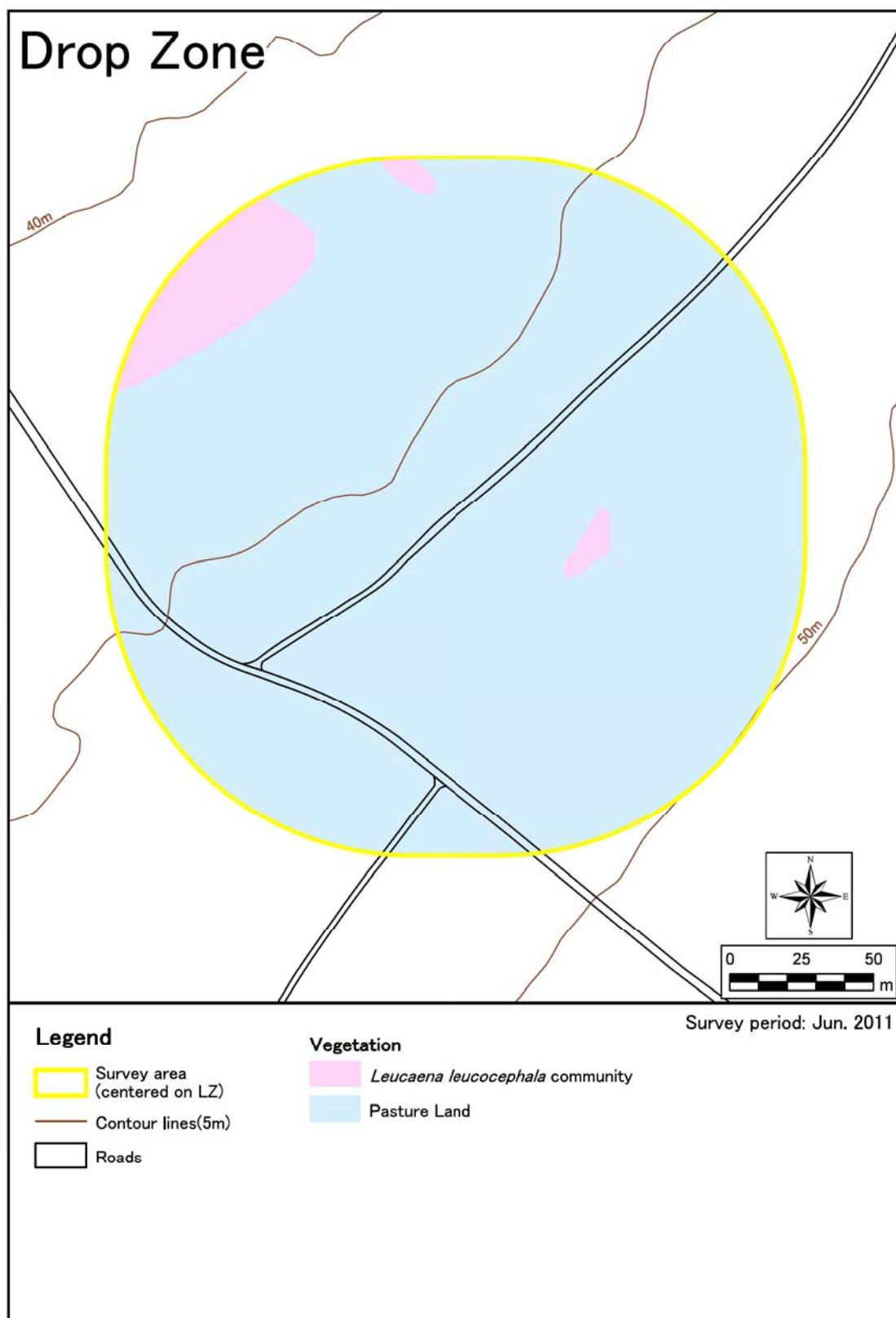
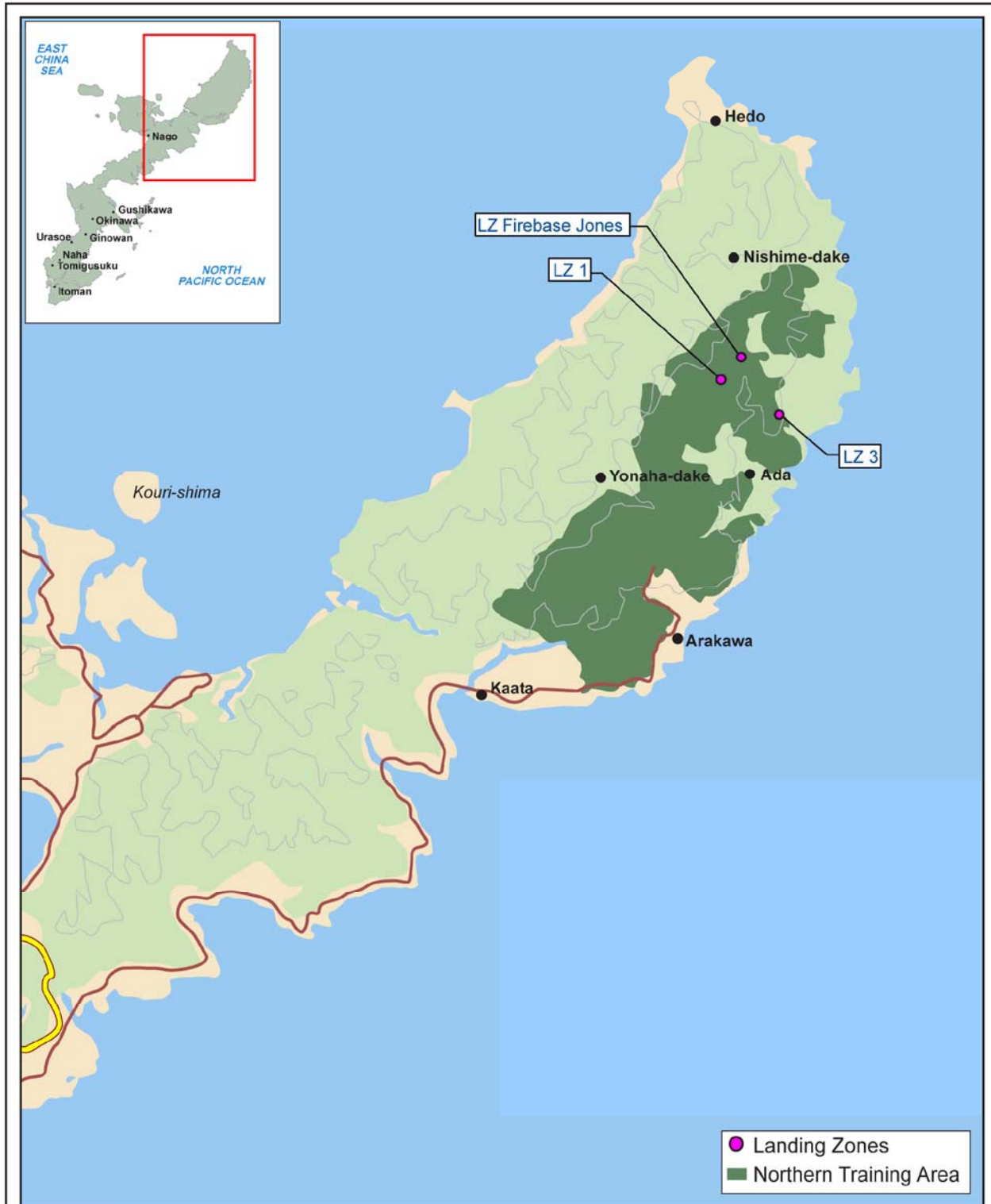


Figure 1-6 Vegetation Near Drop Zone



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Figure 1.B LZ Locations within the Northern Training Area



NTA Vegetation

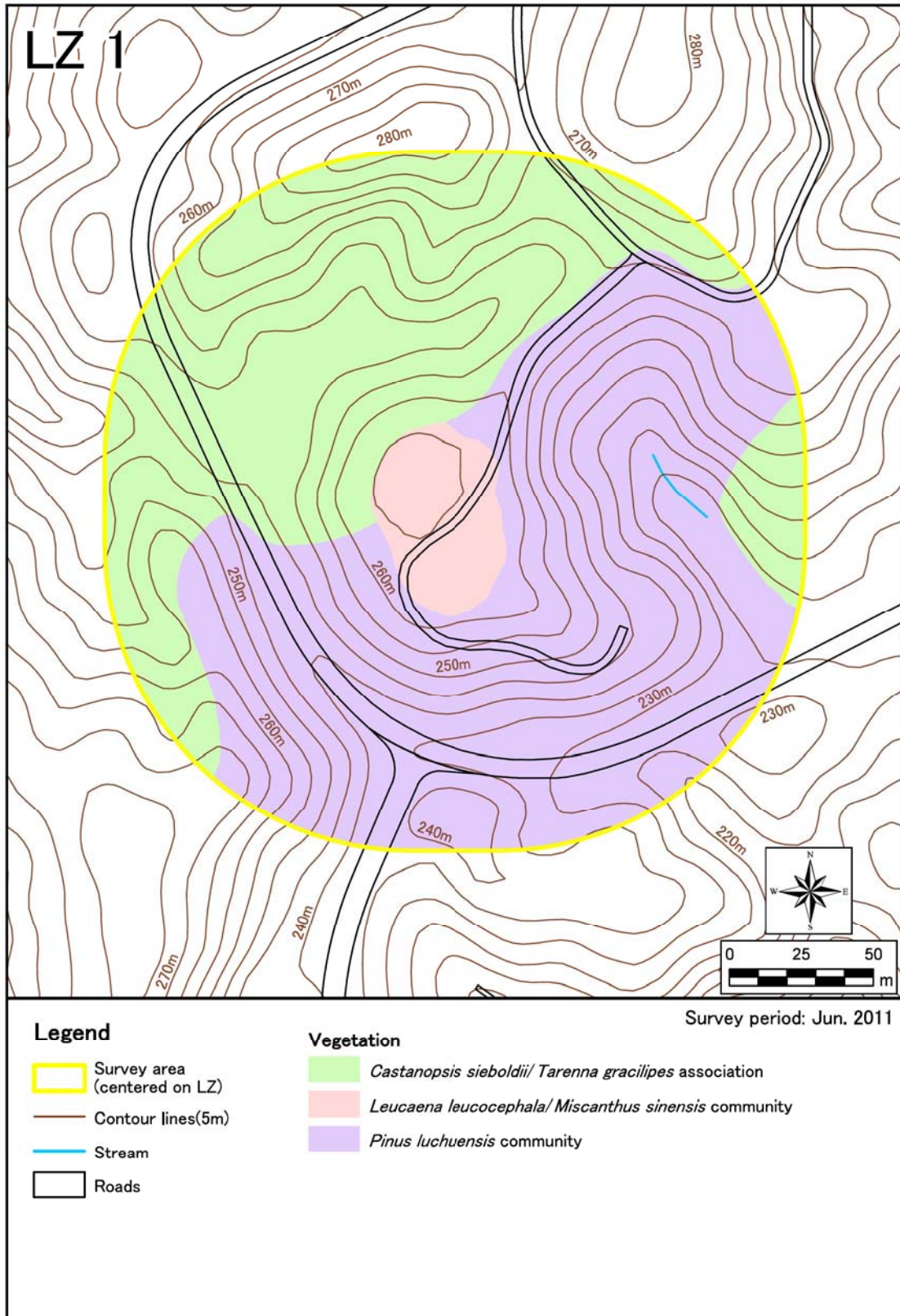


Figure 1-7 Vegetation Near LZ 1

NTA Vegetation

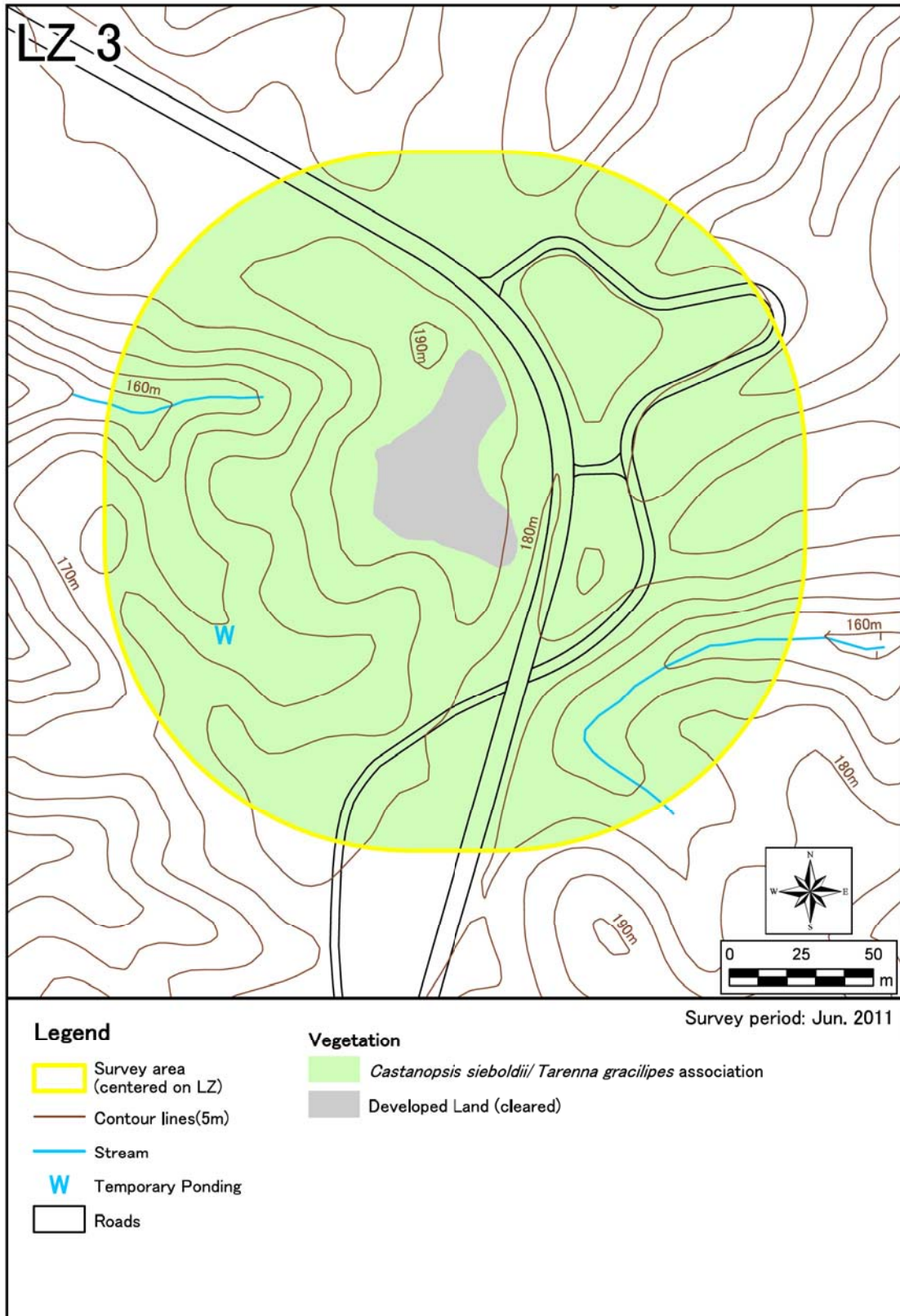


Figure 1-8 Vegetation Near LZ 3

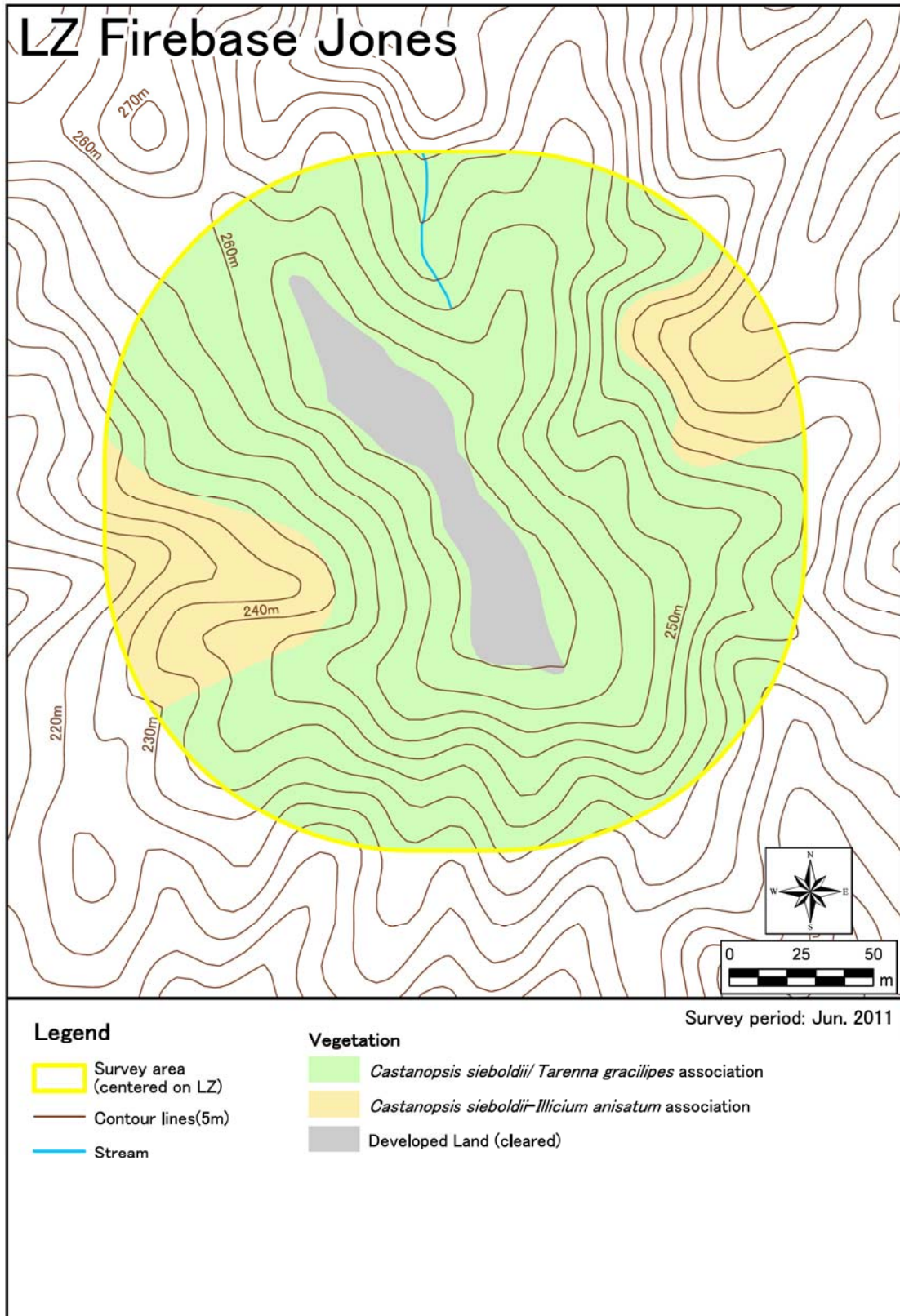


Figure 1-9 Vegetation Near LZ Firebase Jones

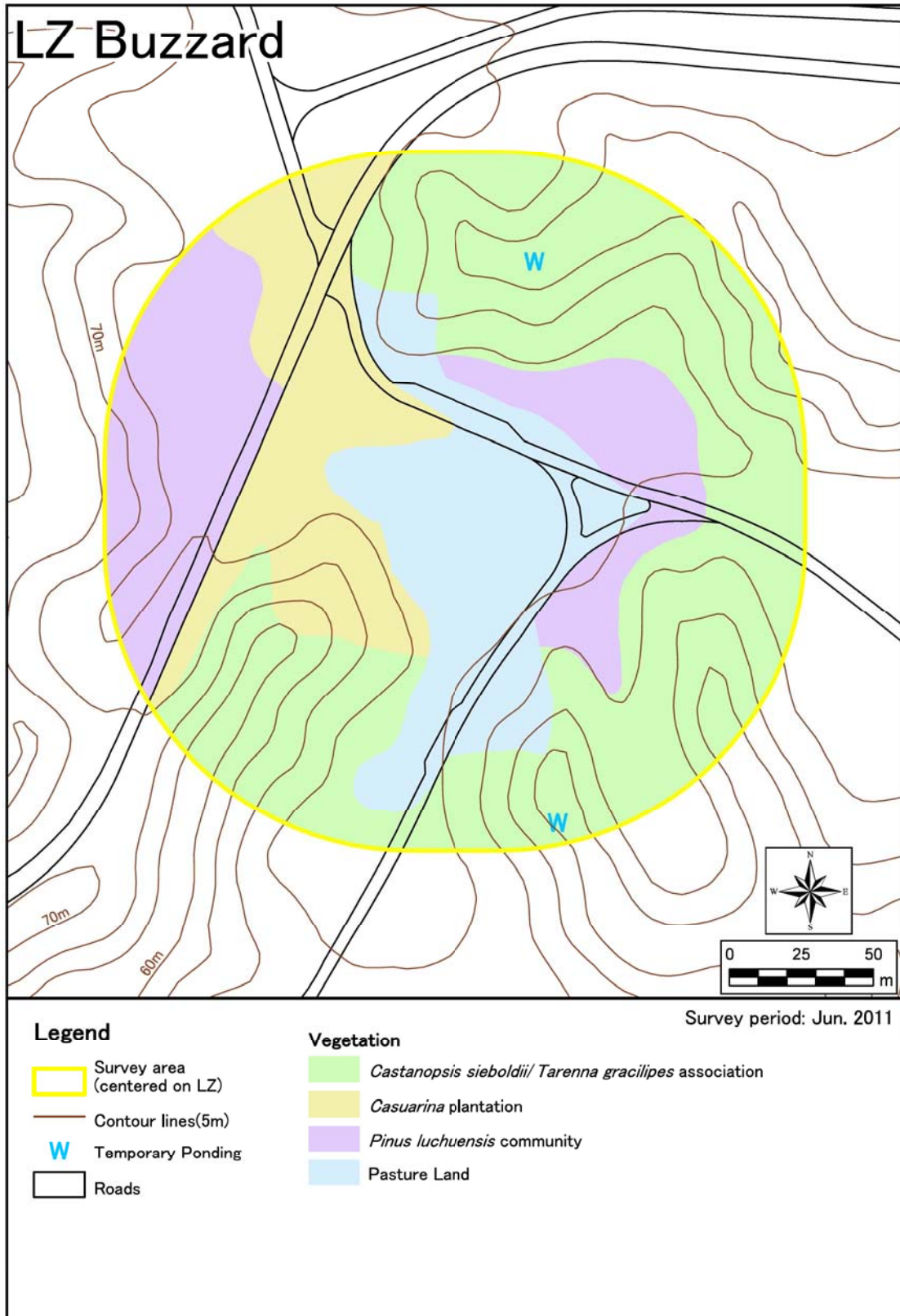


Figure 1-10 Vegetation Near LZ Buzzard

CTA Vegetation

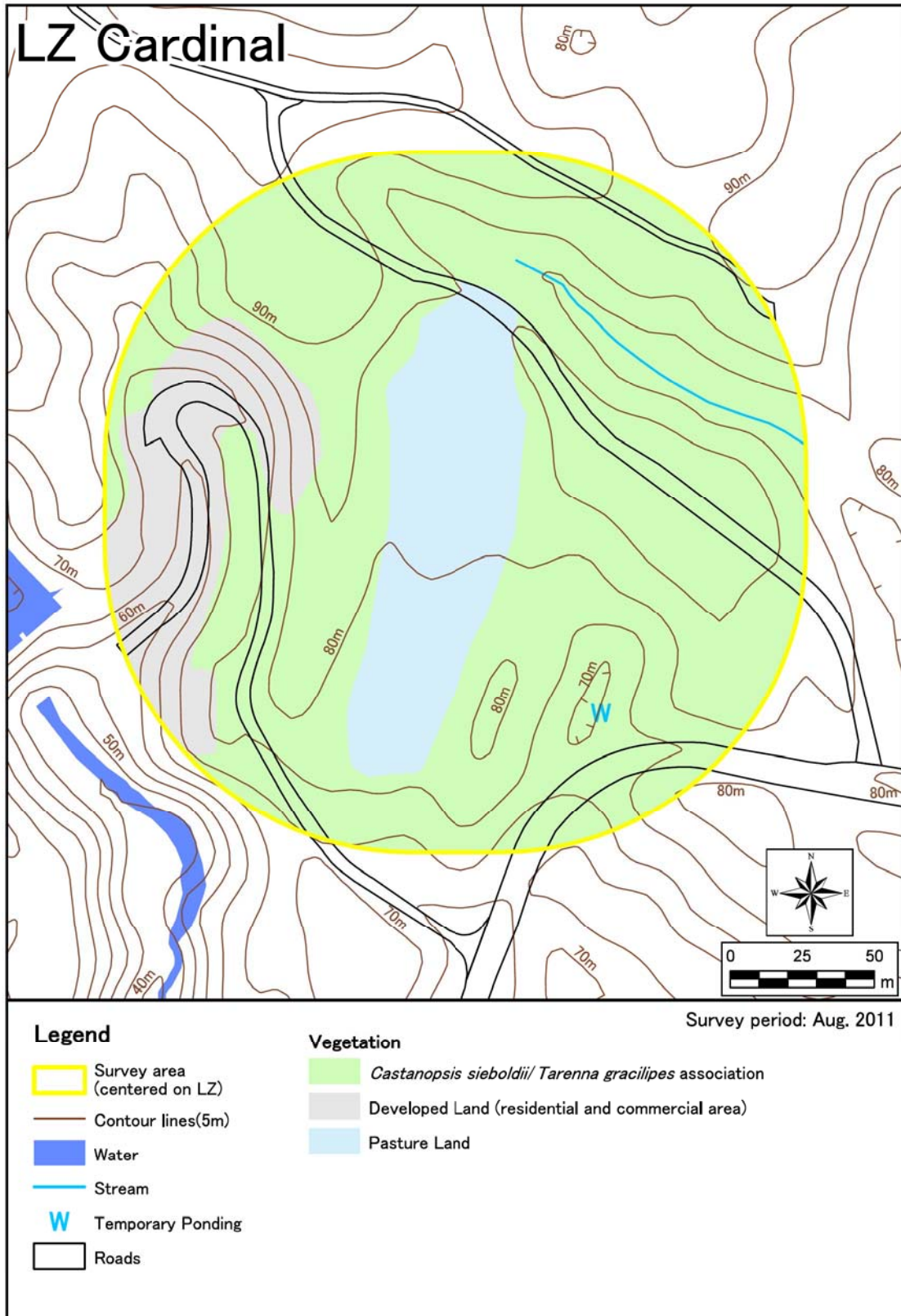


Figure 1-11 Vegetation Near LZ Cardinal

CTA Vegetation

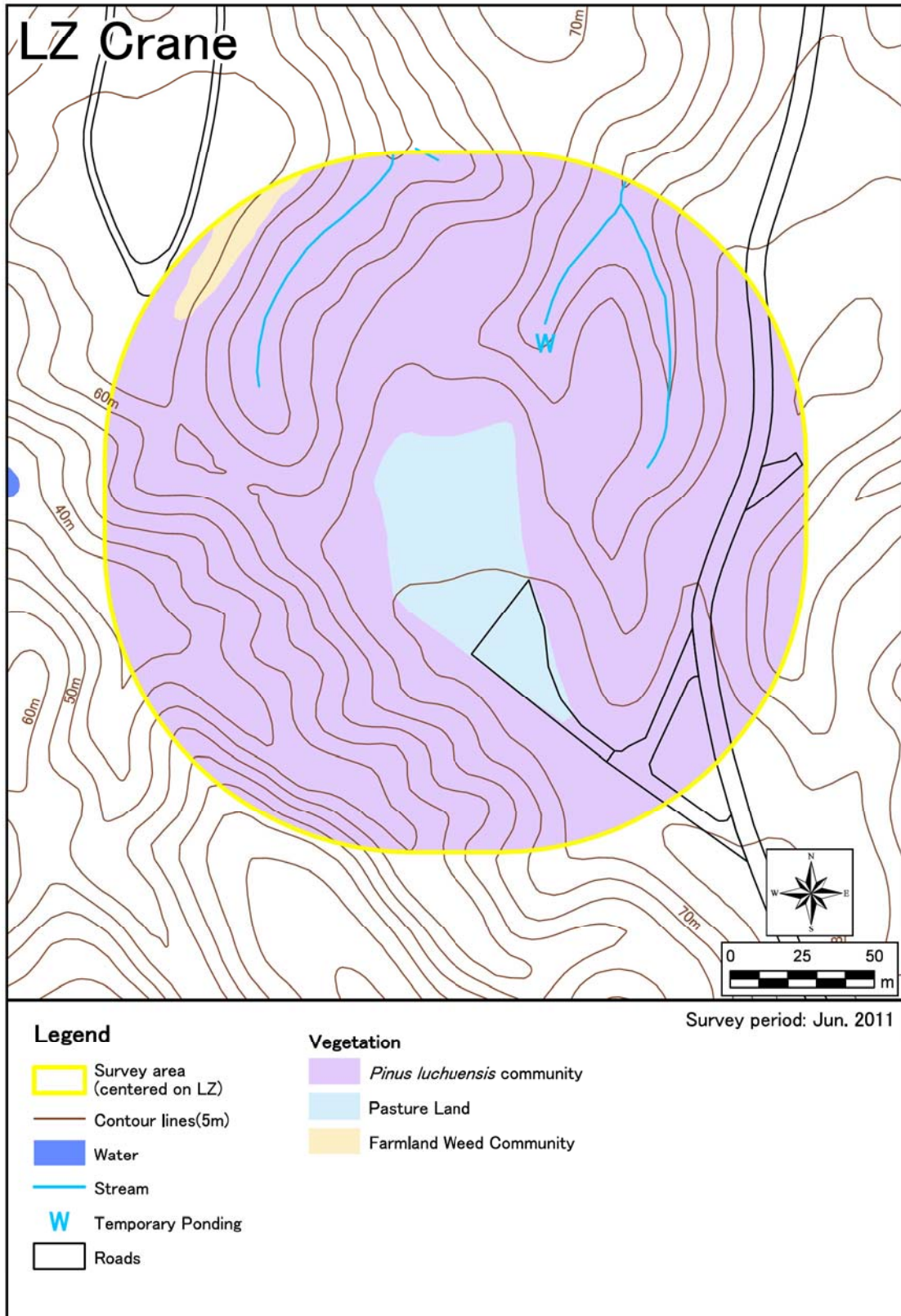


Figure 1-12 Vegetation Near LZ Crane

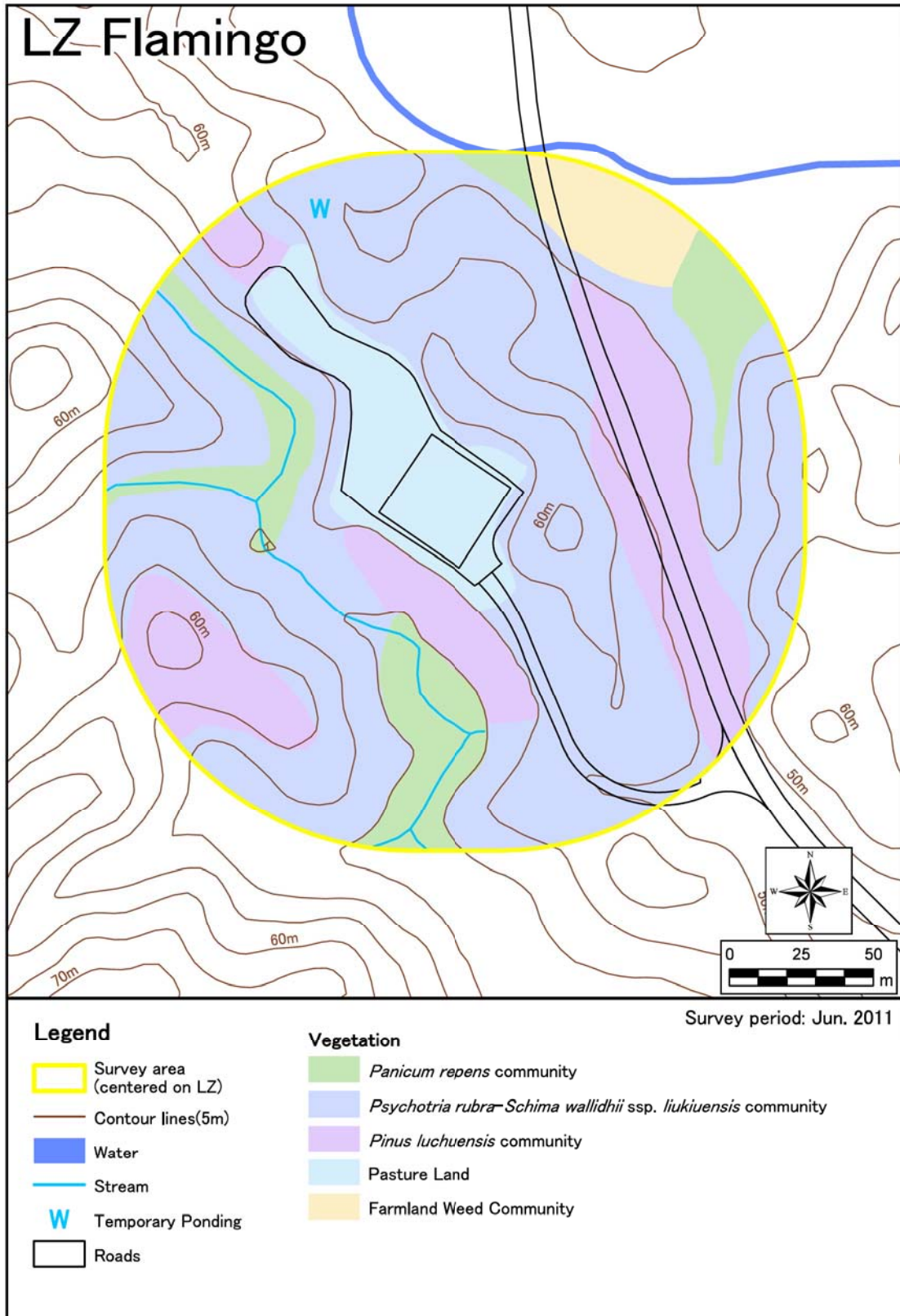


Figure 1-13 Vegetation Near LZ Flamingo

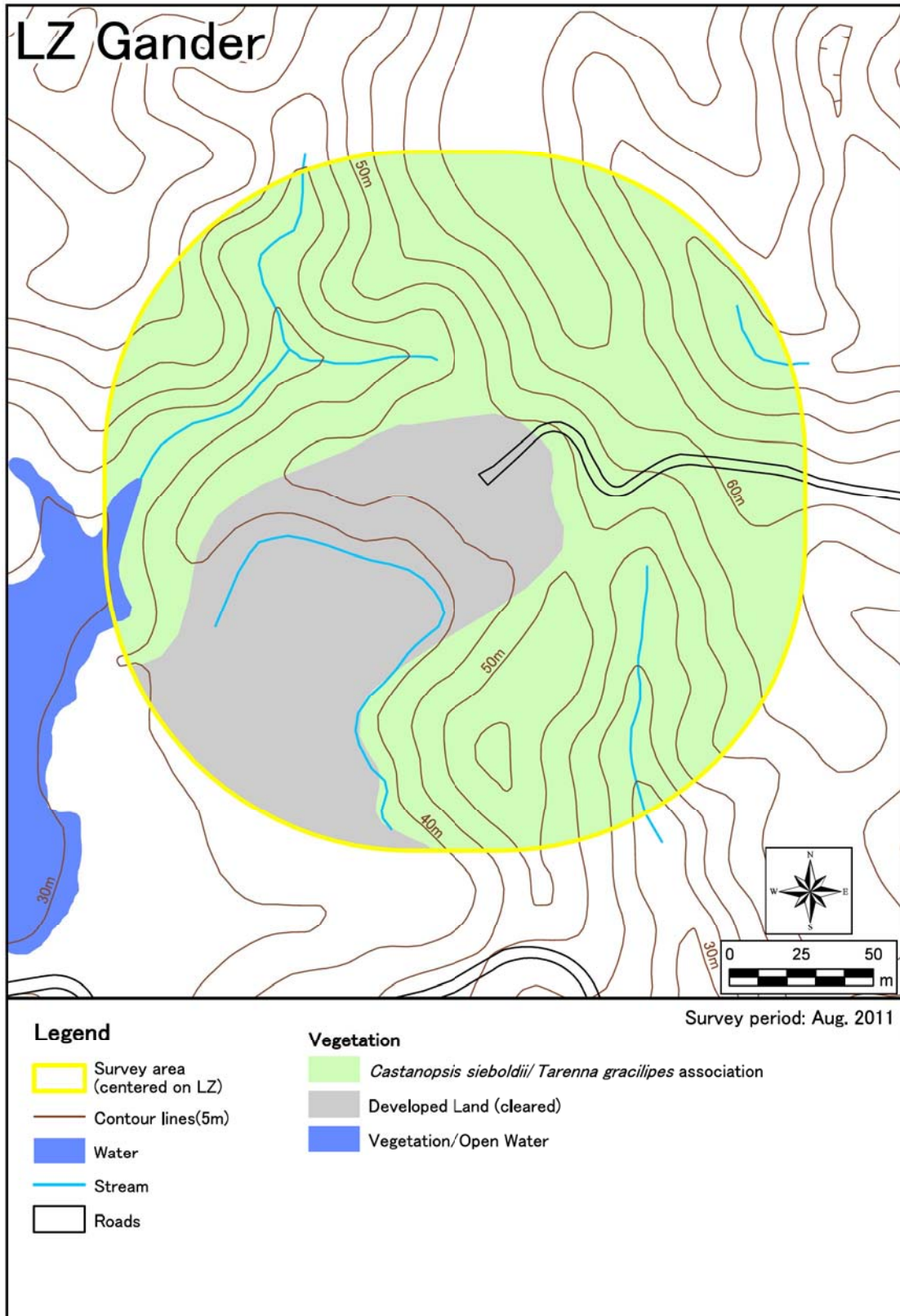


Figure 1-14 Vegetation Near LZ Gander

CTA Vegetation

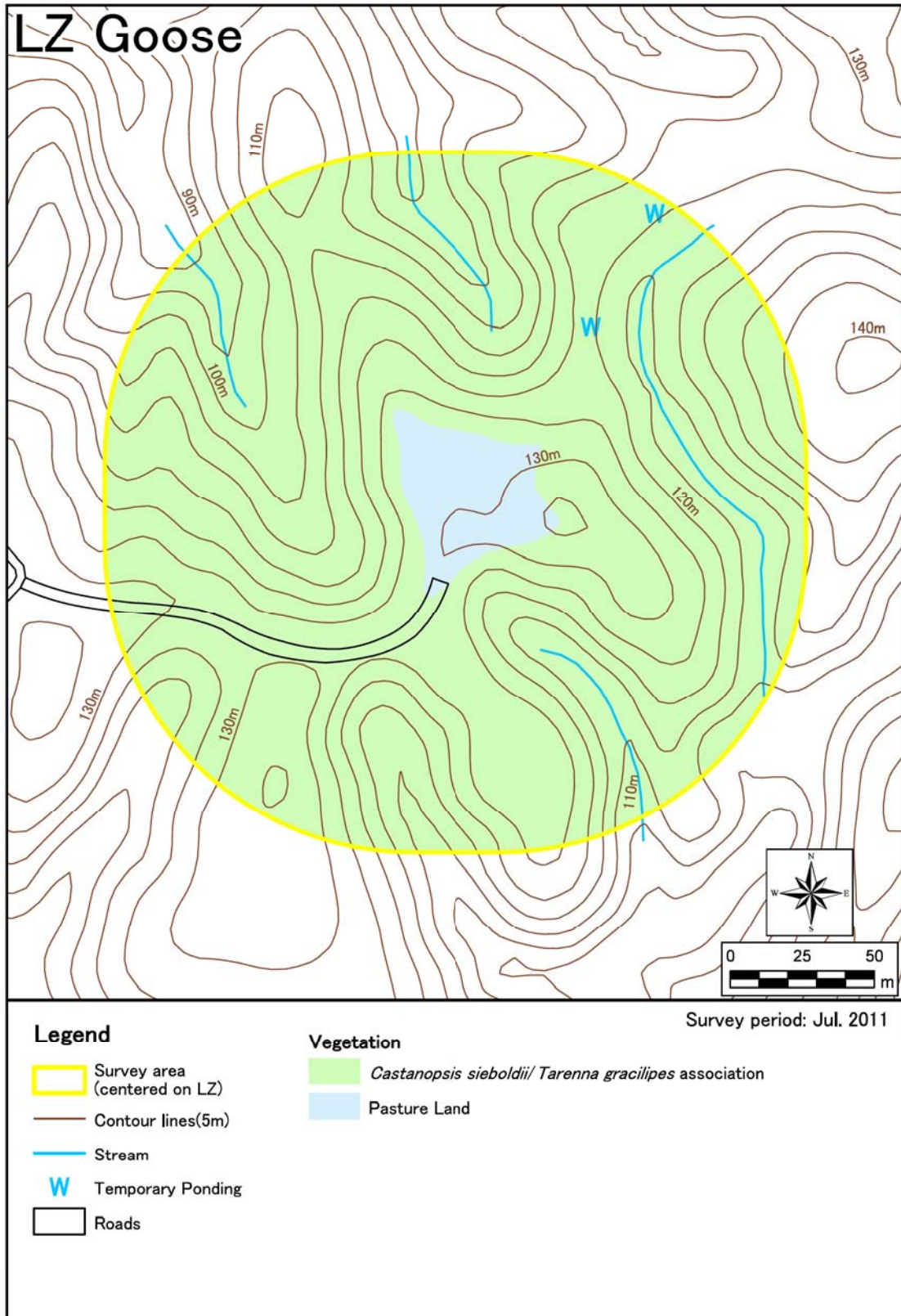


Figure 1-15 Vegetation Near LZ Goose

CTA Vegetation

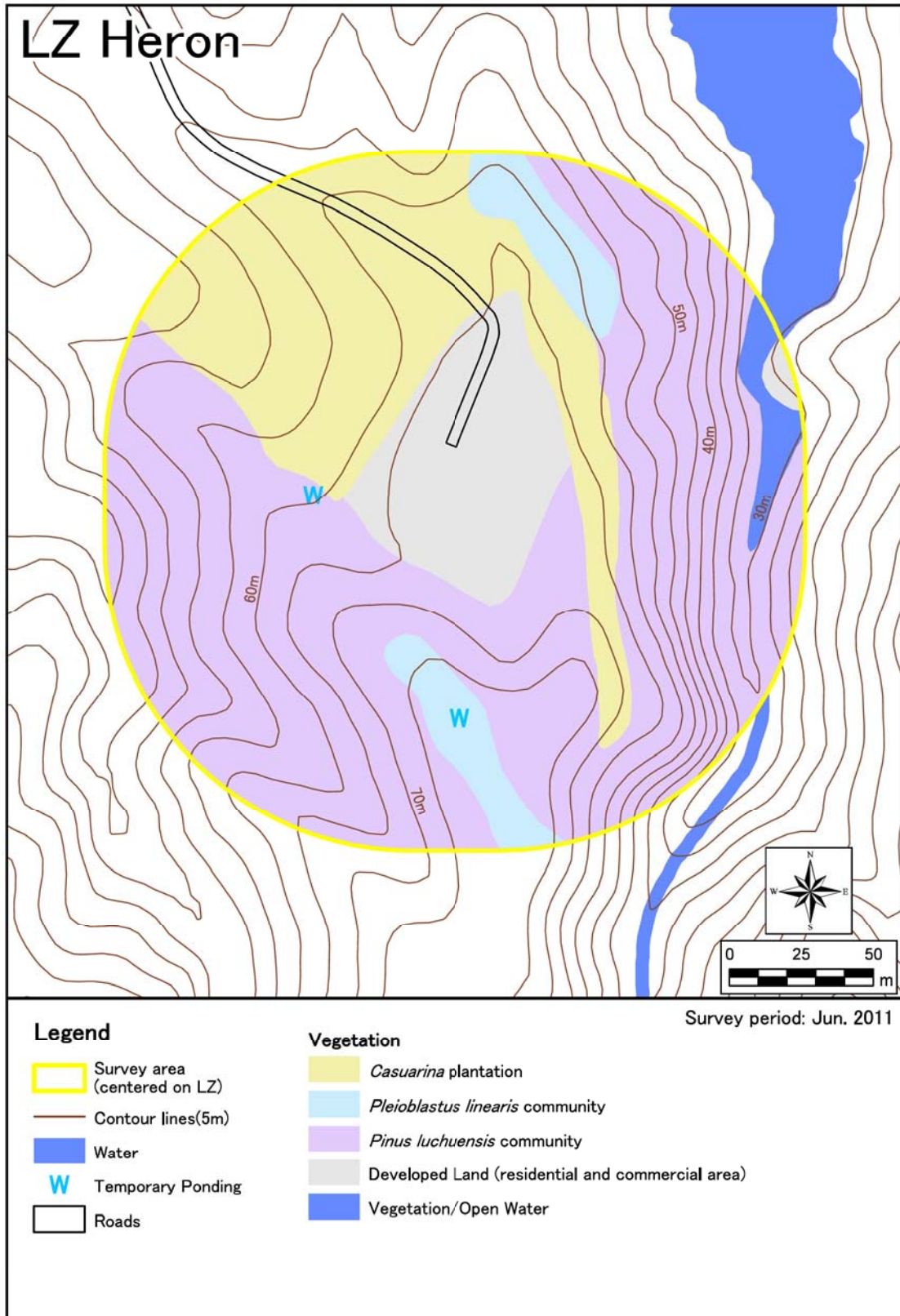


Figure 1-16 Vegetation Near LZ Heron

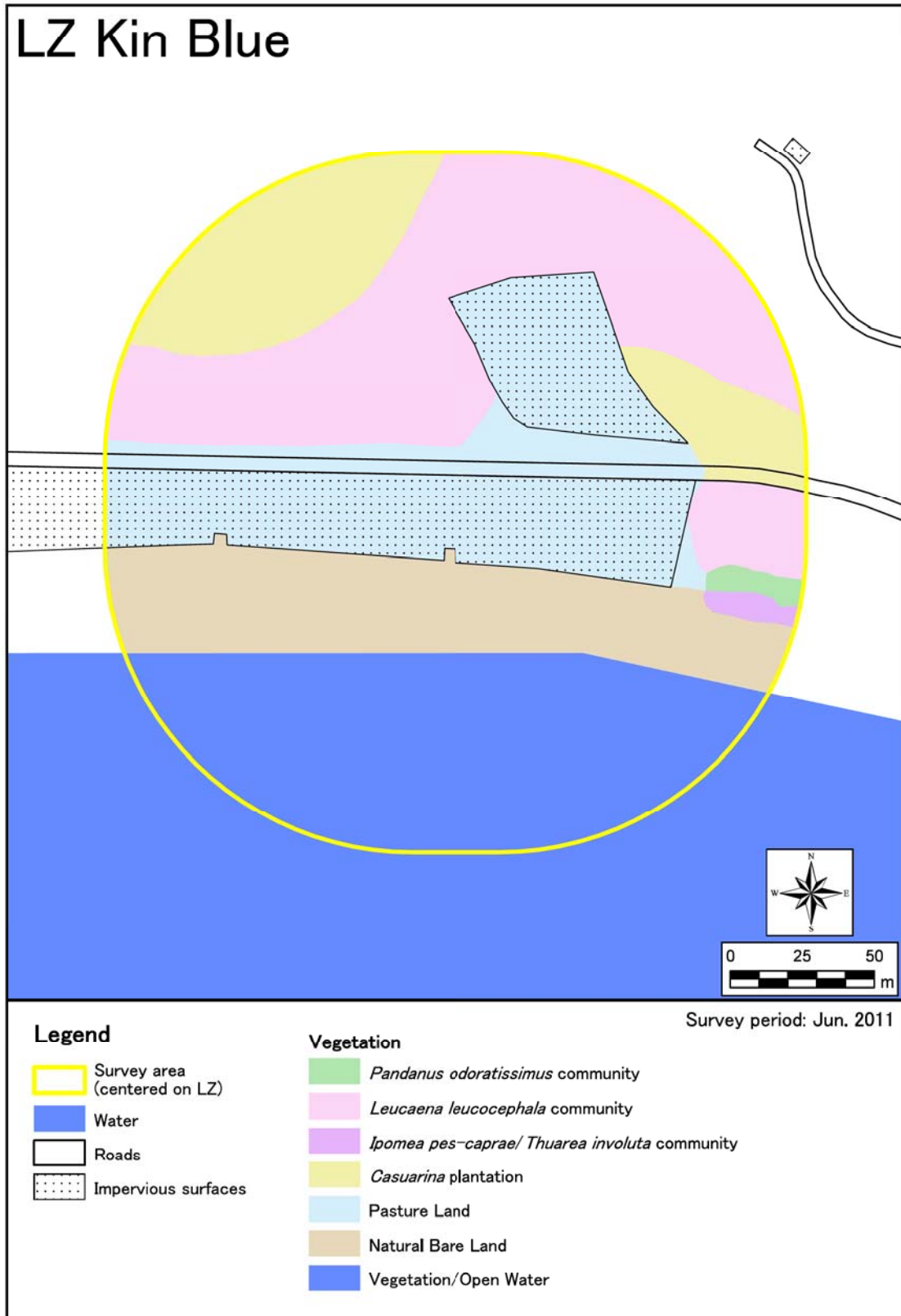


Figure 1-17 Vegetation Near LZ Kin Blue

CTA Vegetation

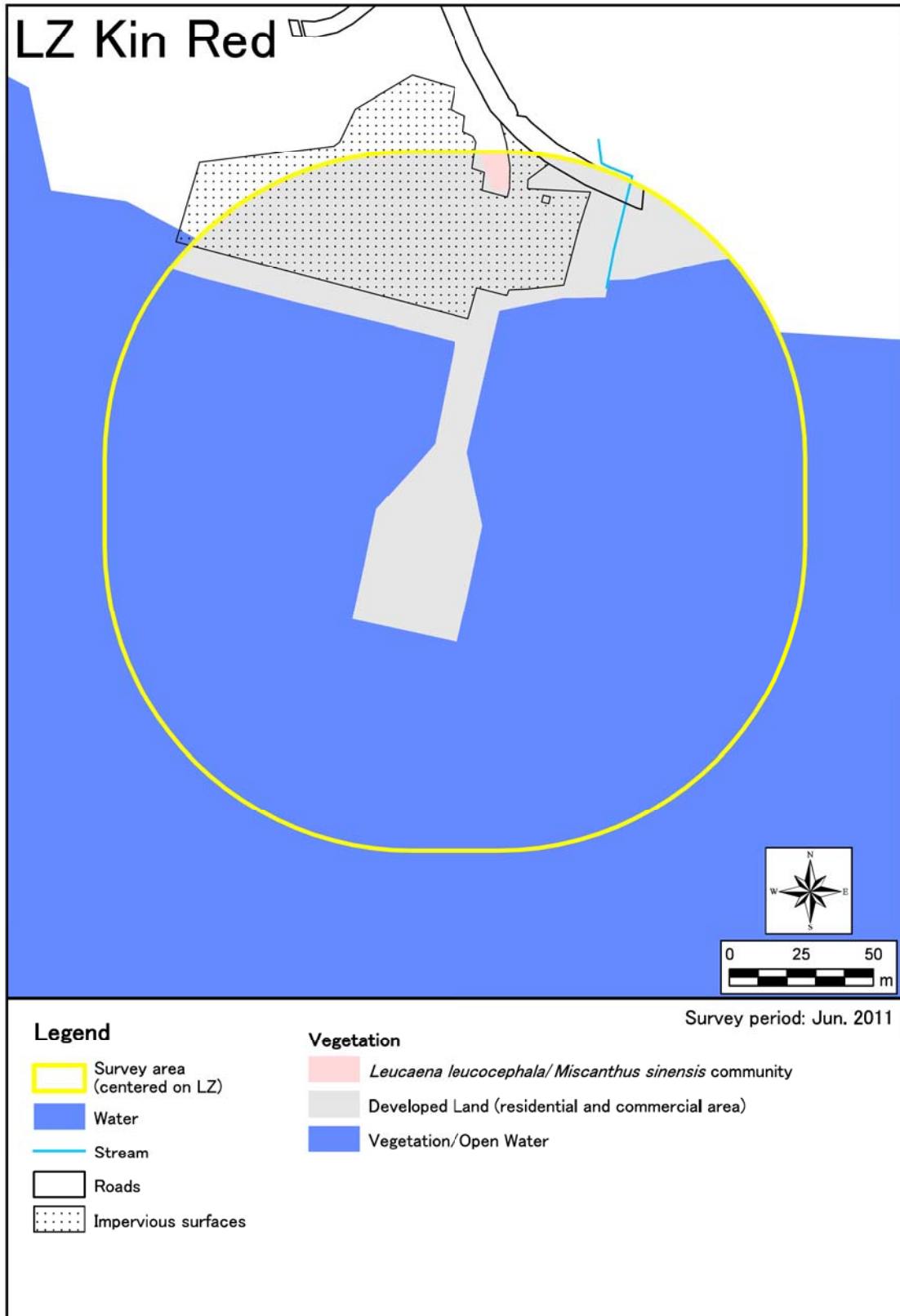


Figure 1-18 Vegetation Near LZ Kin Red

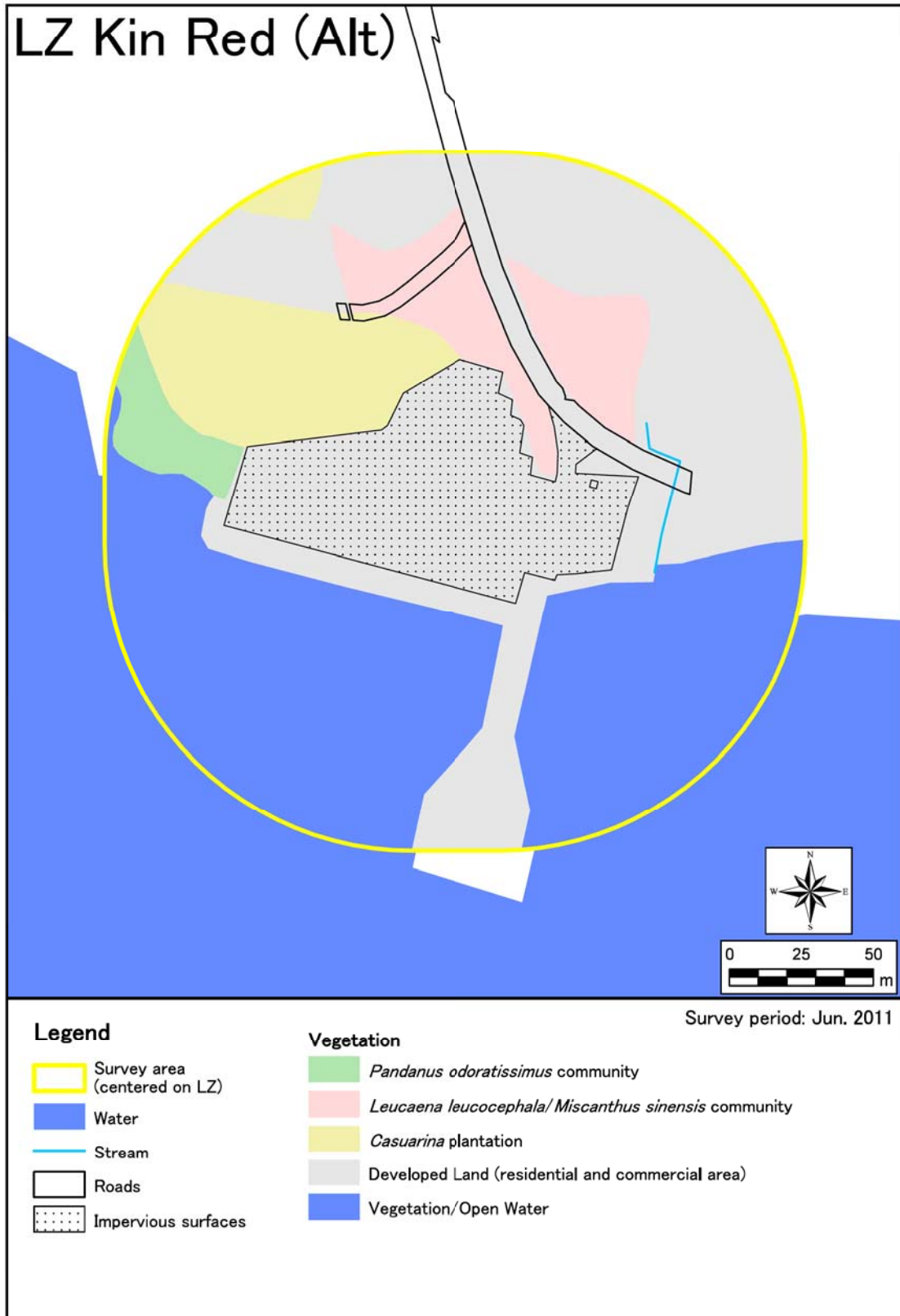


Figure 1-19 Vegetation Near LZ Kin Red (Alt)

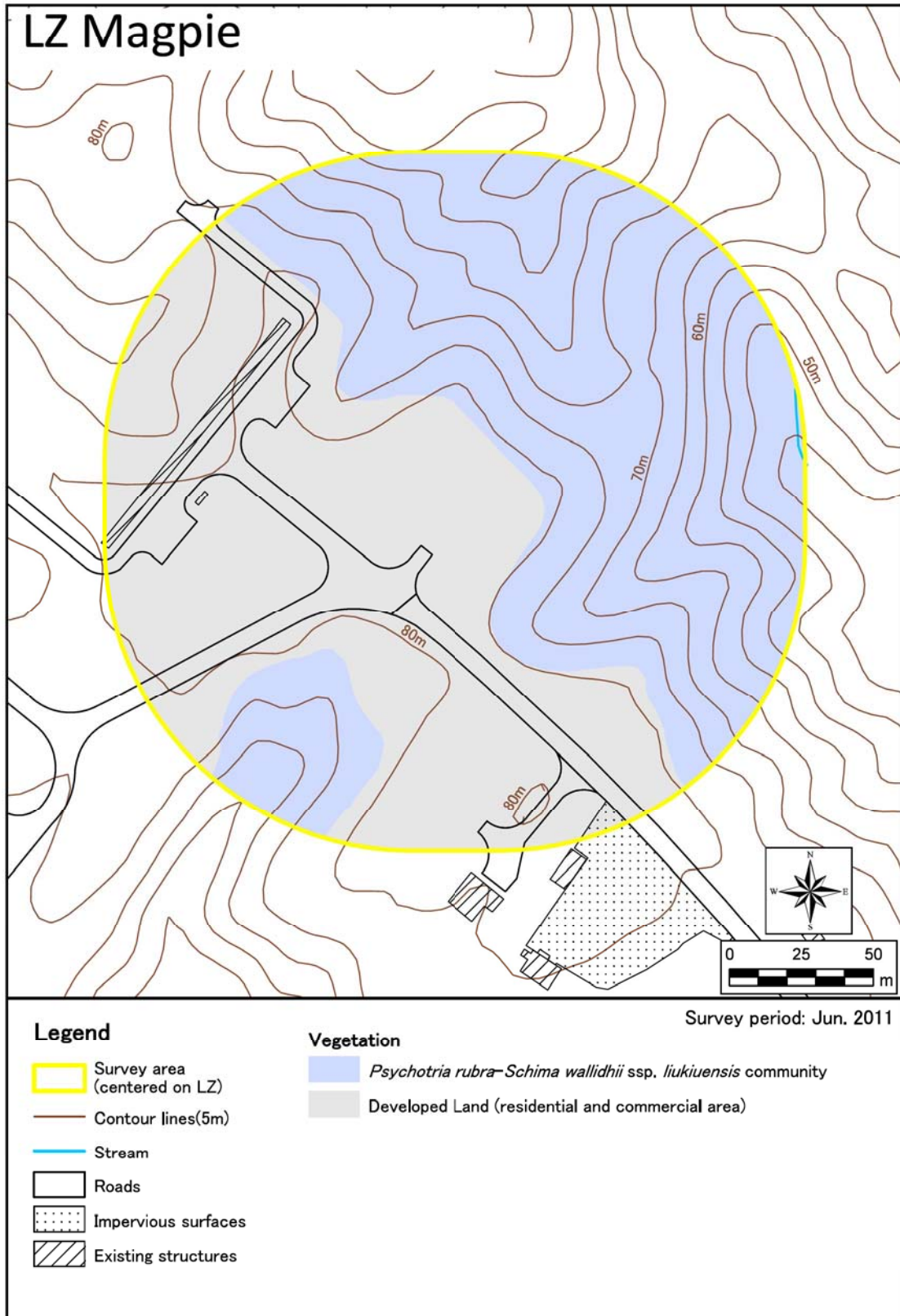


Figure 1-20 Vegetation Near LZ Magpie

CTA Vegetation

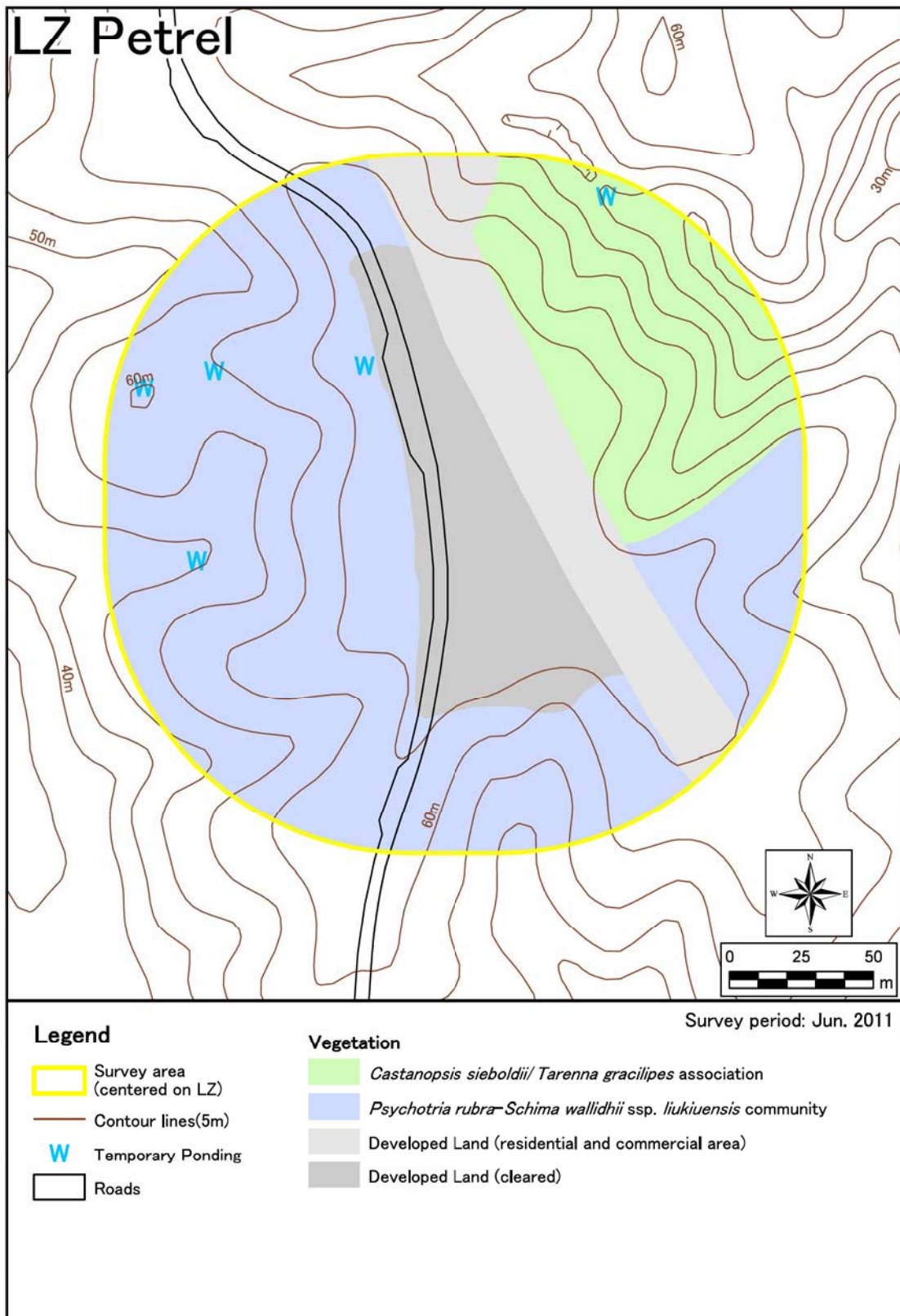


Figure 1-21 Vegetation Near LZ Petrel

CTA Vegetation

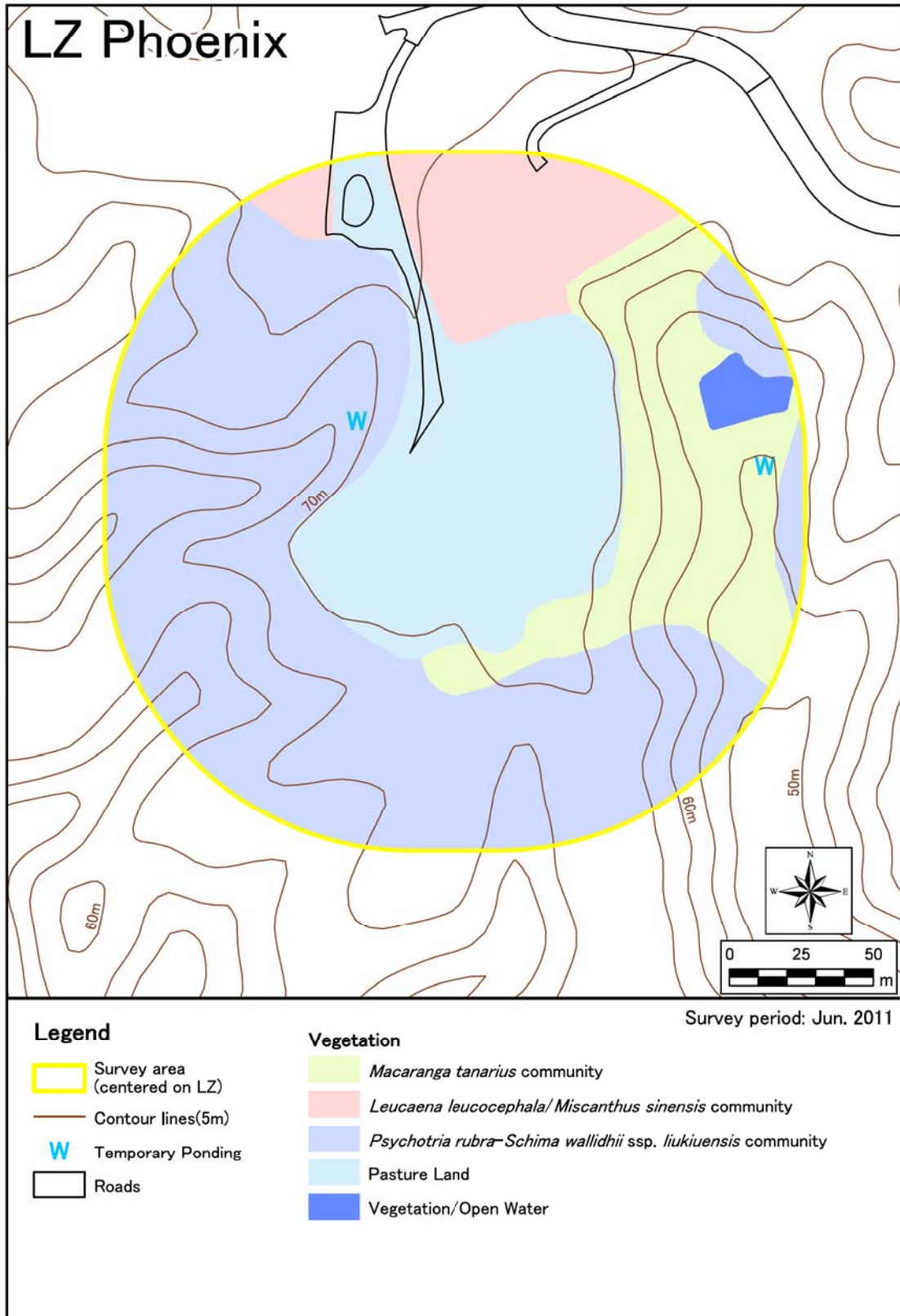


Figure 1-22 Vegetation Near LZ Phoenix

CTA Vegetation

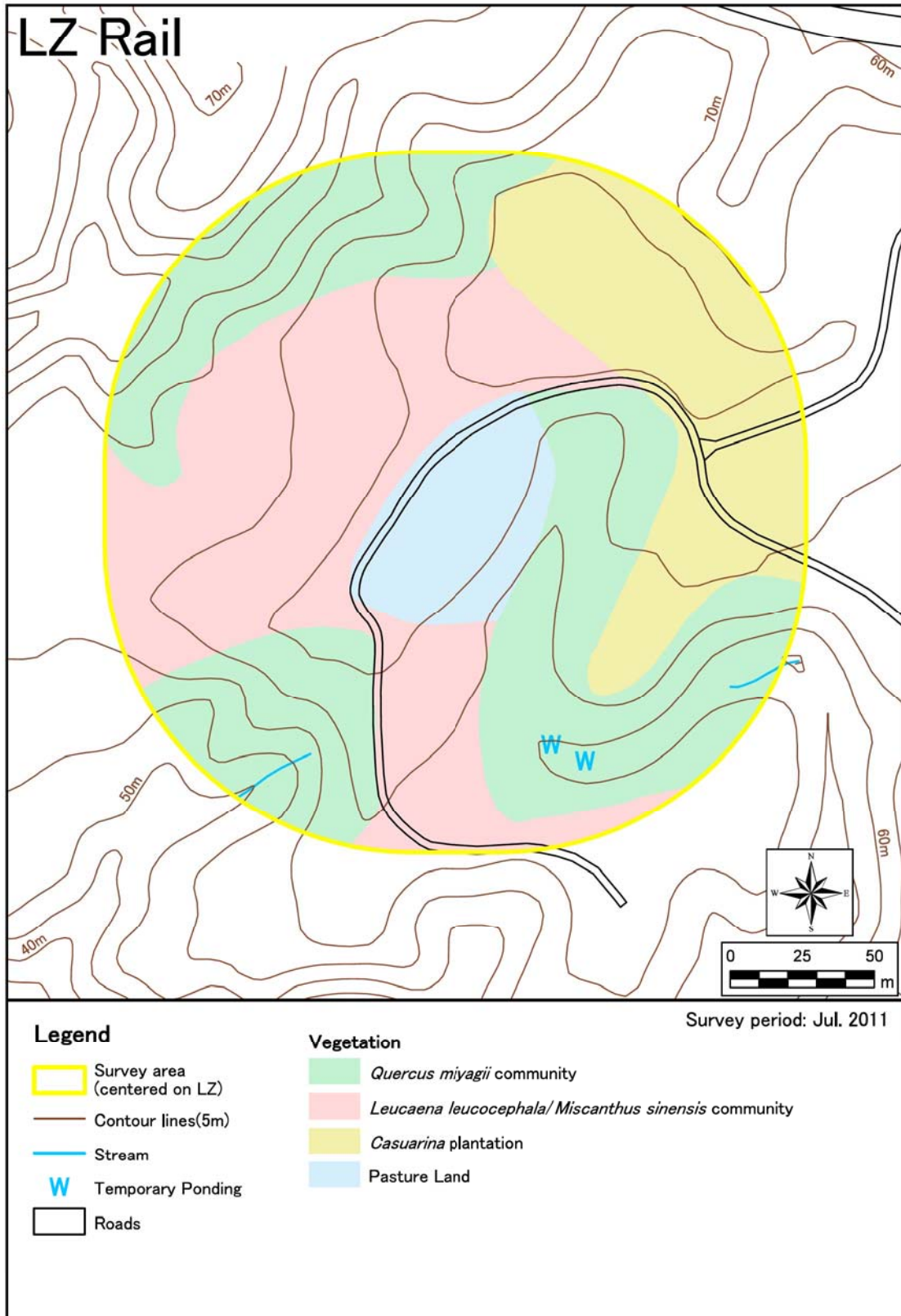


Figure 1-23 Vegetation Near LZ Rail

CTA Vegetation

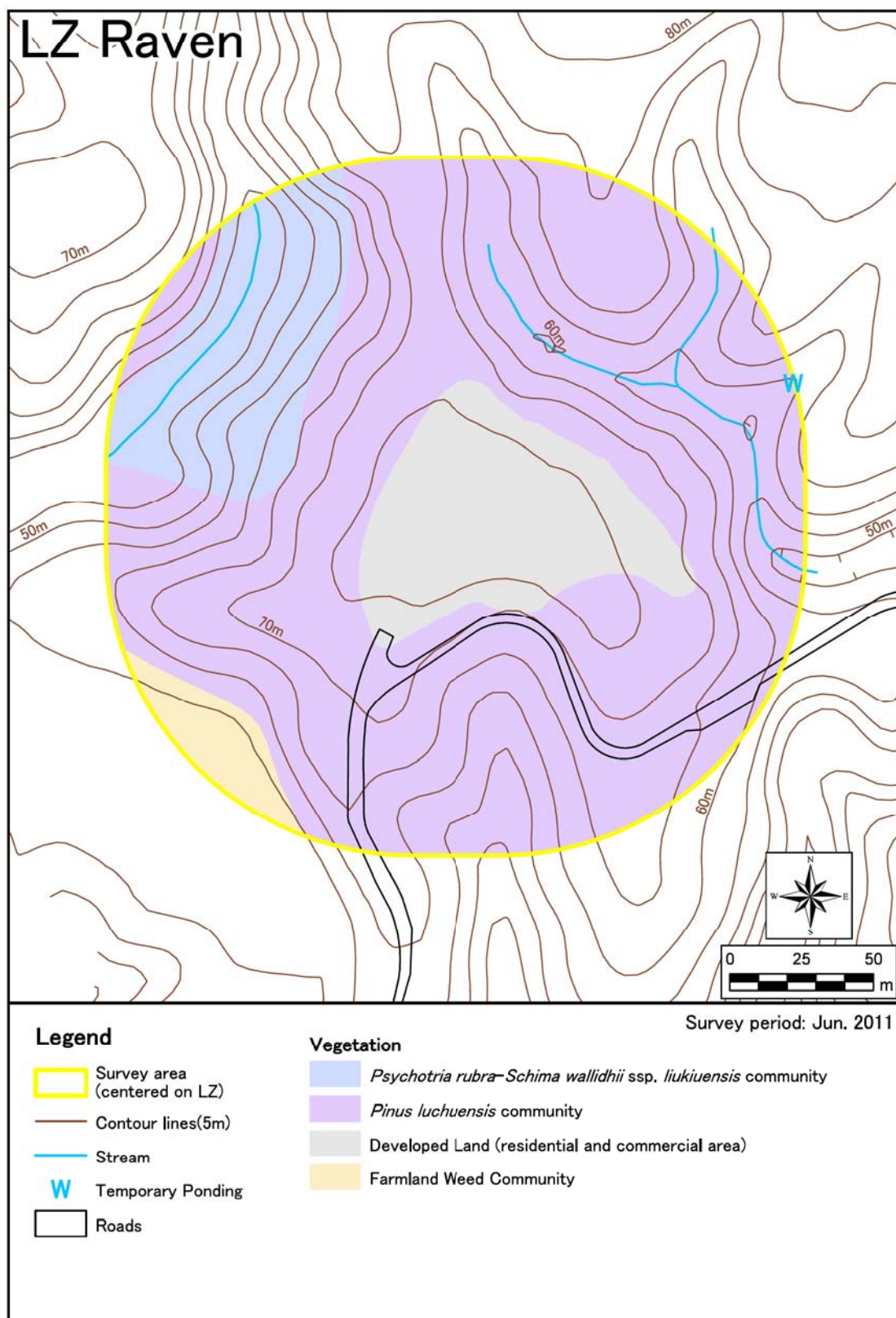


Figure 1-24 Vegetation Near LZ Raven

CTA Vegetation

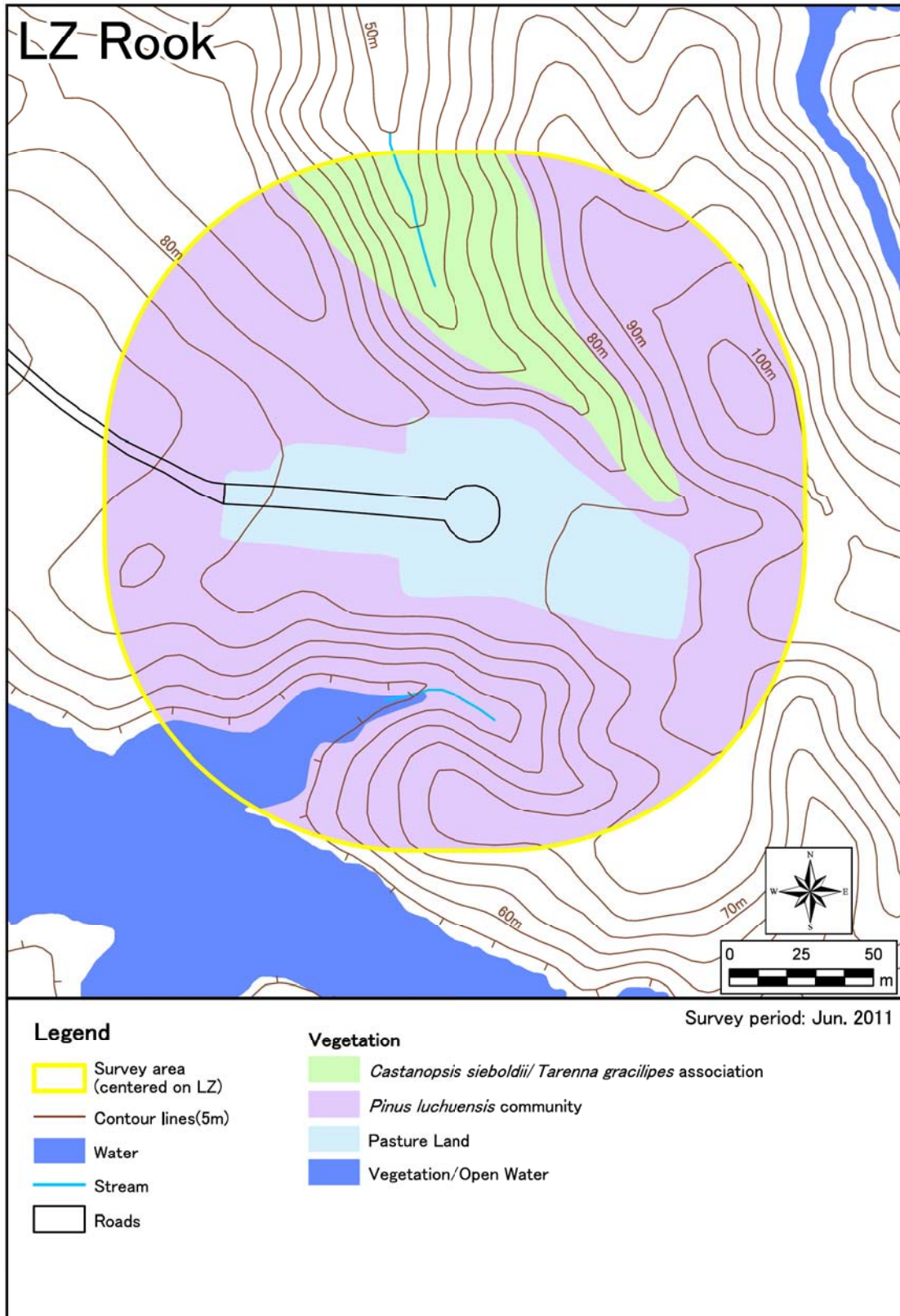


Figure 1-25 Vegetation Near LZ Rook

CTA Vegetation

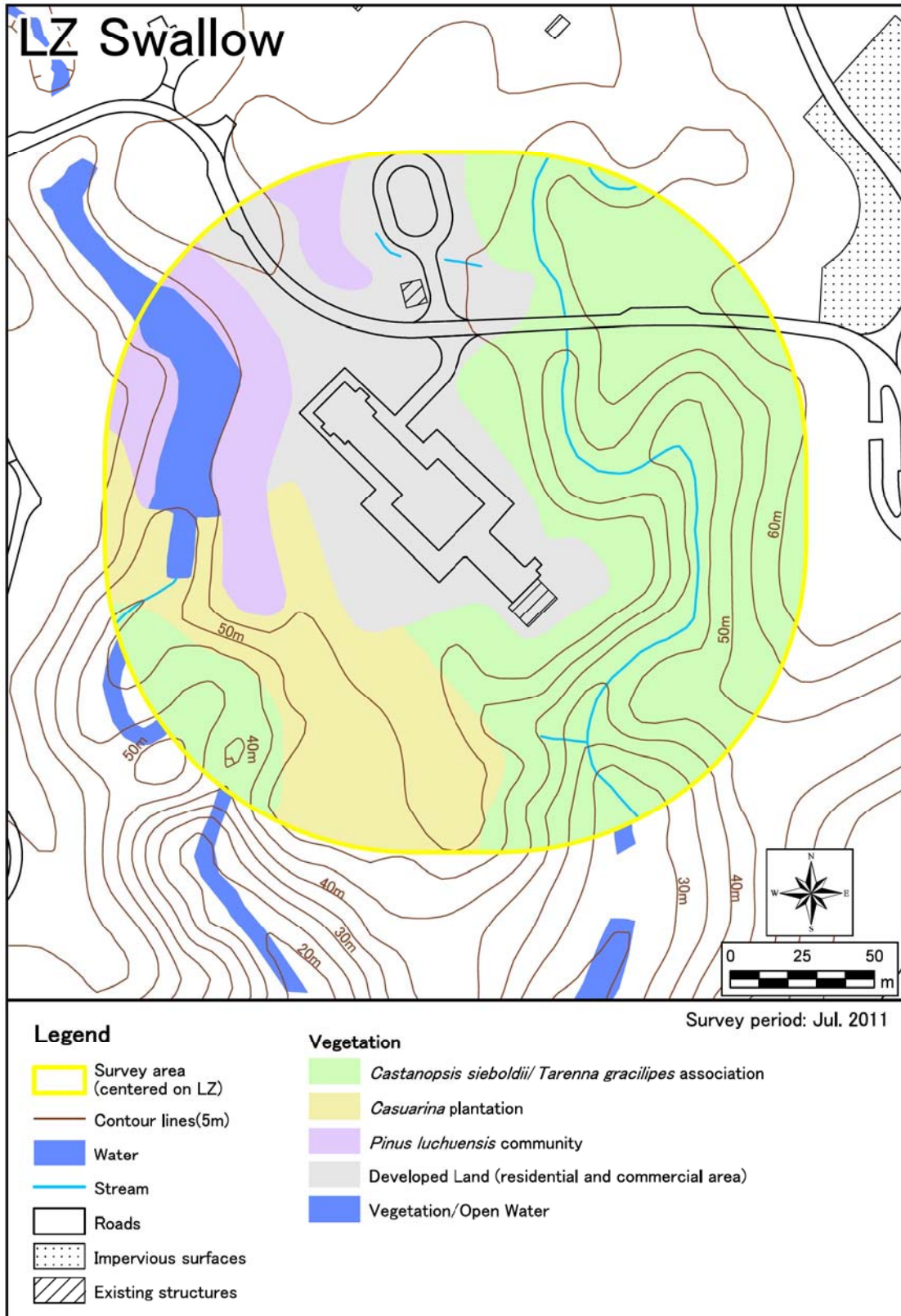


Figure 1-26 Vegetation Near LZ Swallow

CTA Vegetation

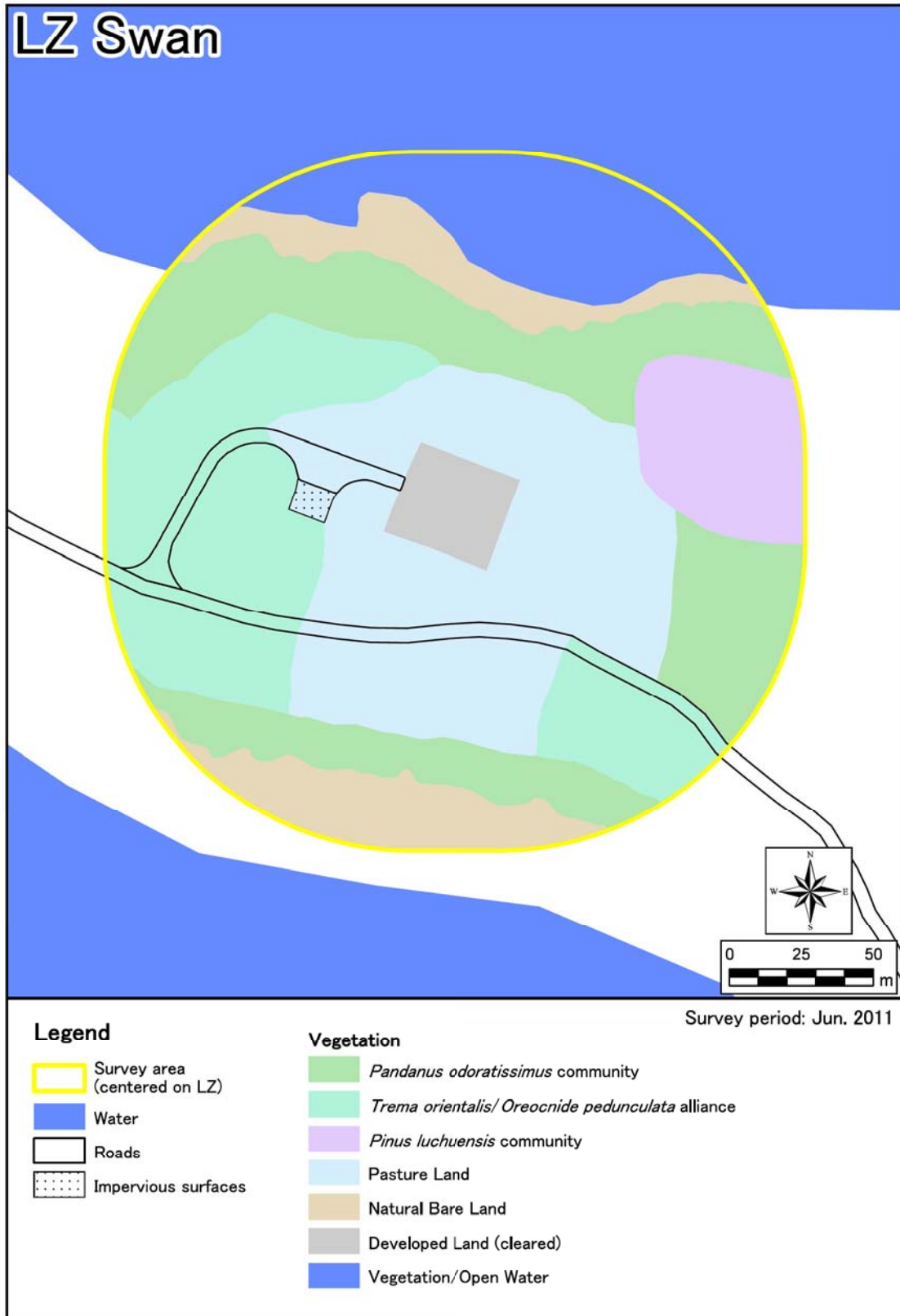


Figure 1-27 Vegetation Near LZ Swan

CTA Vegetation

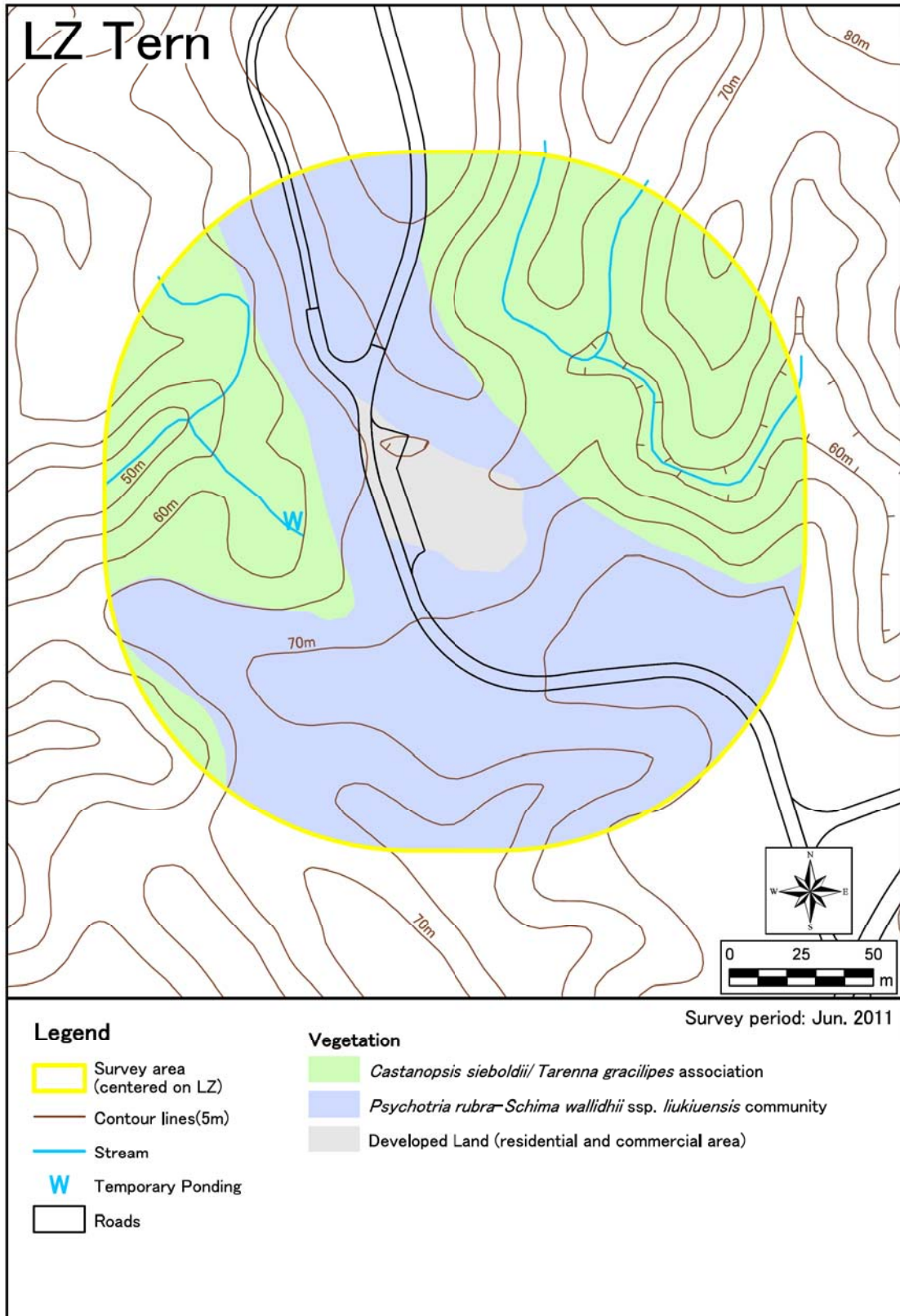


Figure 1-28 Vegetation Near LZ Tern

CTA Vegetation

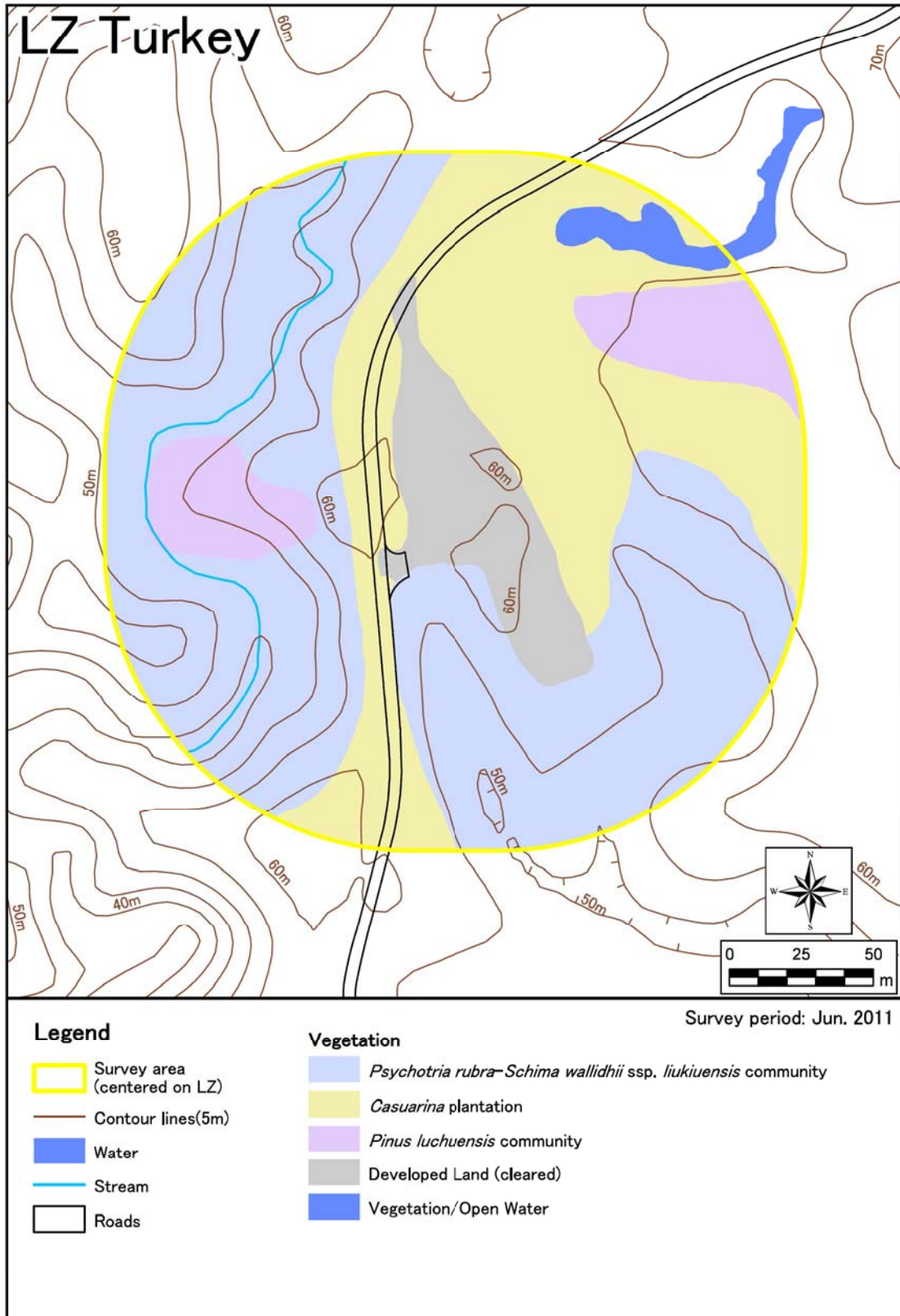


Figure 1-29 Vegetation Near LZ Turkey

CTA Vegetation

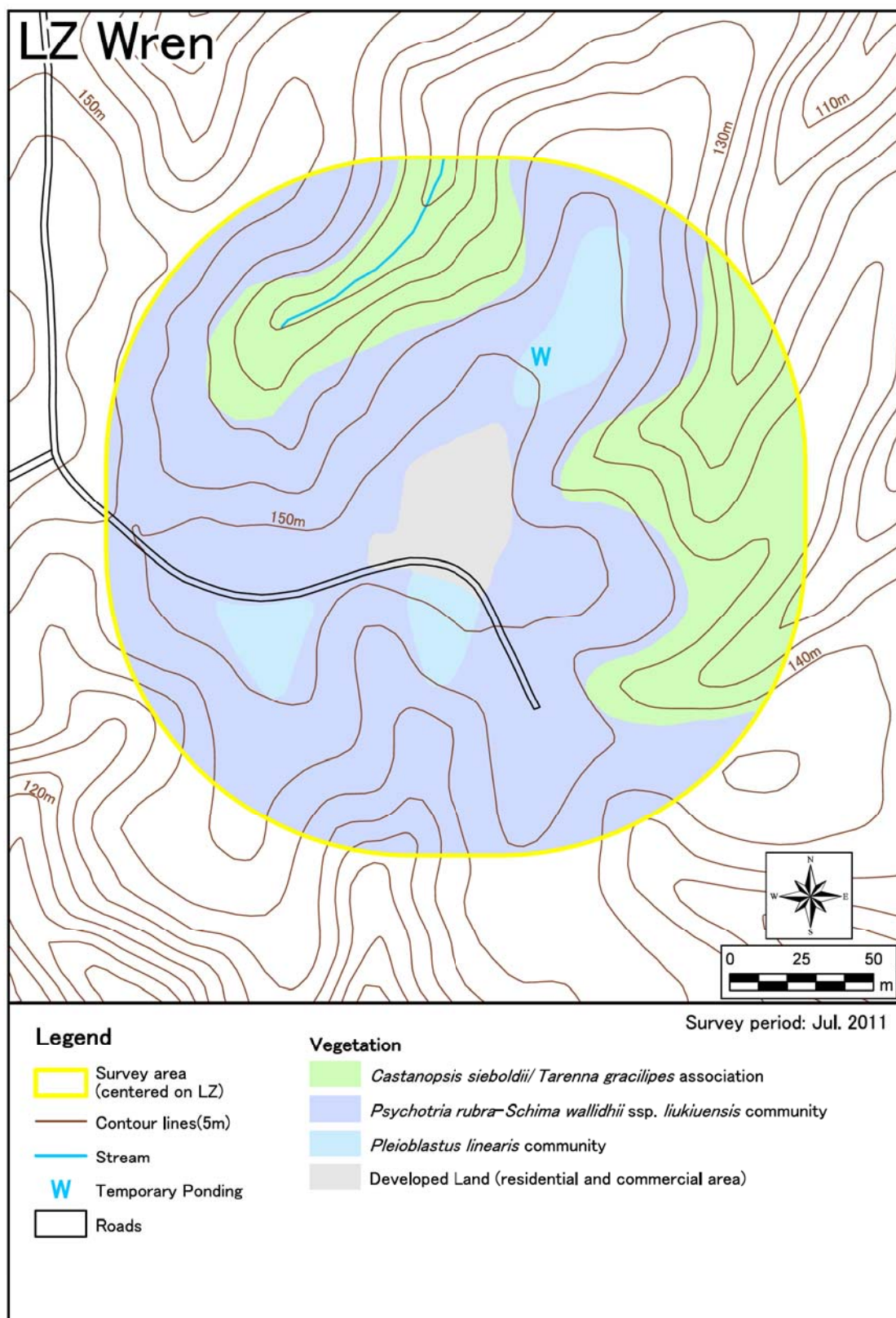
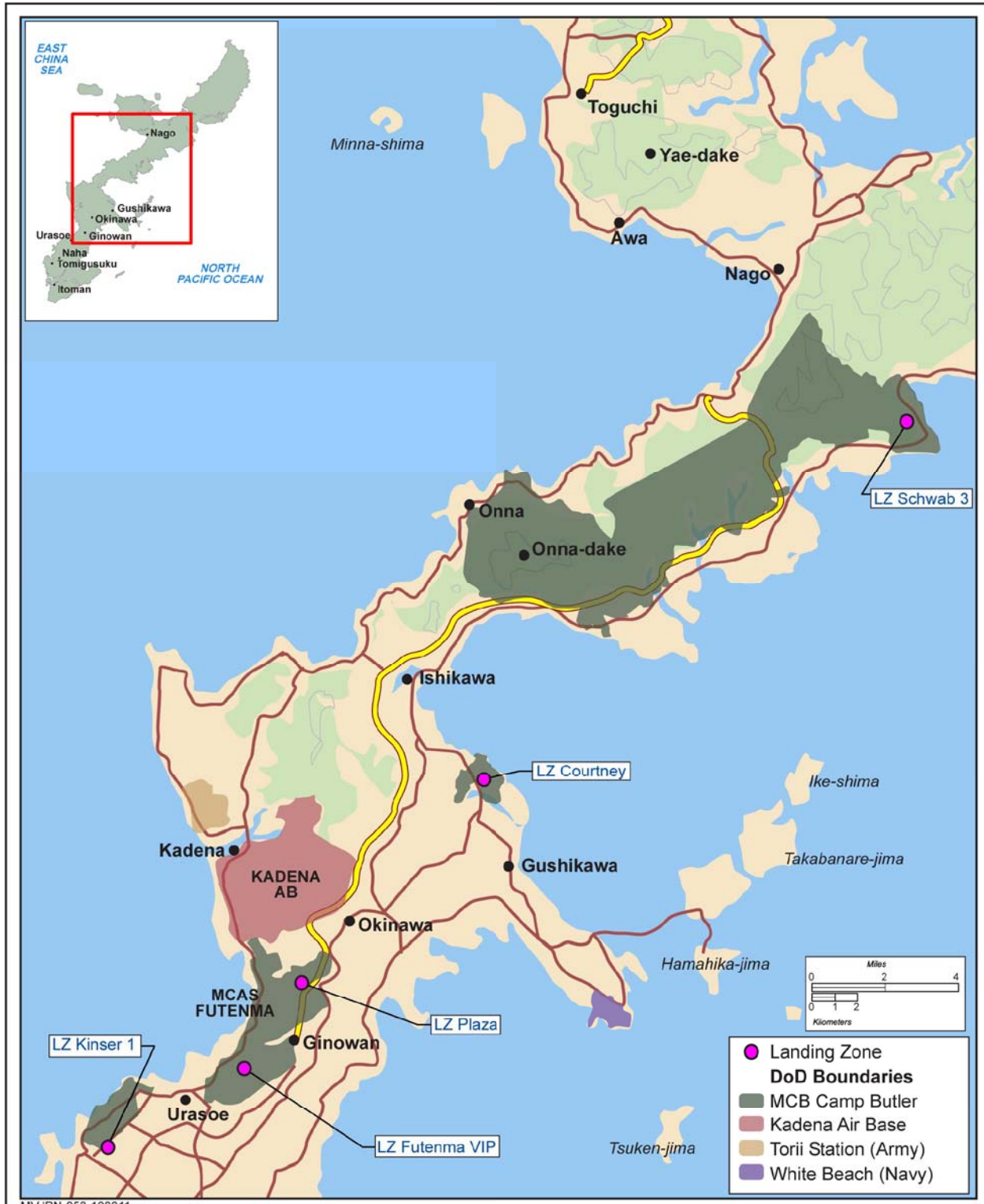


Figure 1-30 Vegetation Near LZ Wren



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Figure 1.D. LZ Locations within the Administrative Area



Administrative Vegetation

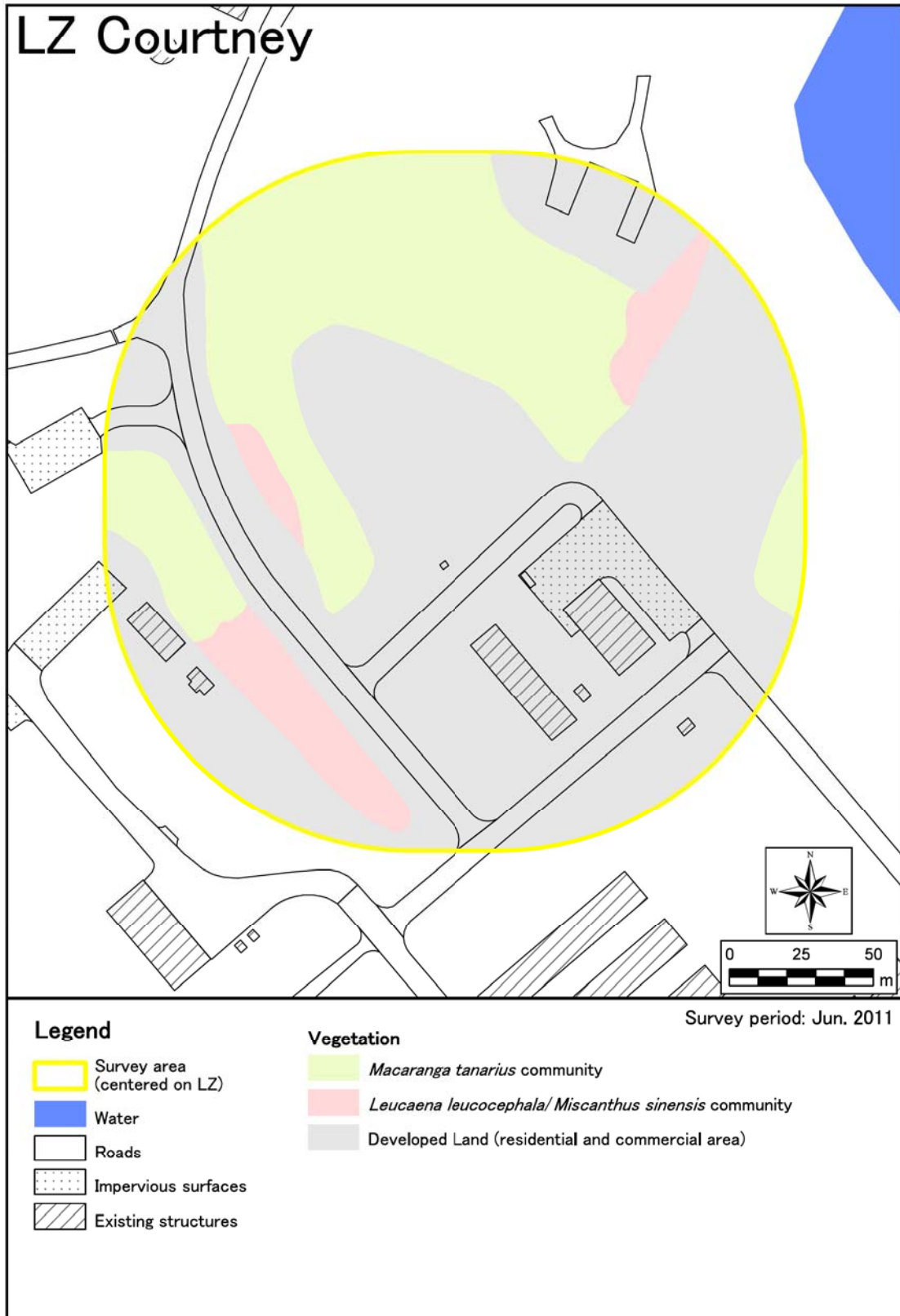


Figure 1-31 Vegetation Near LZ Courtney

Administrative Vegetation

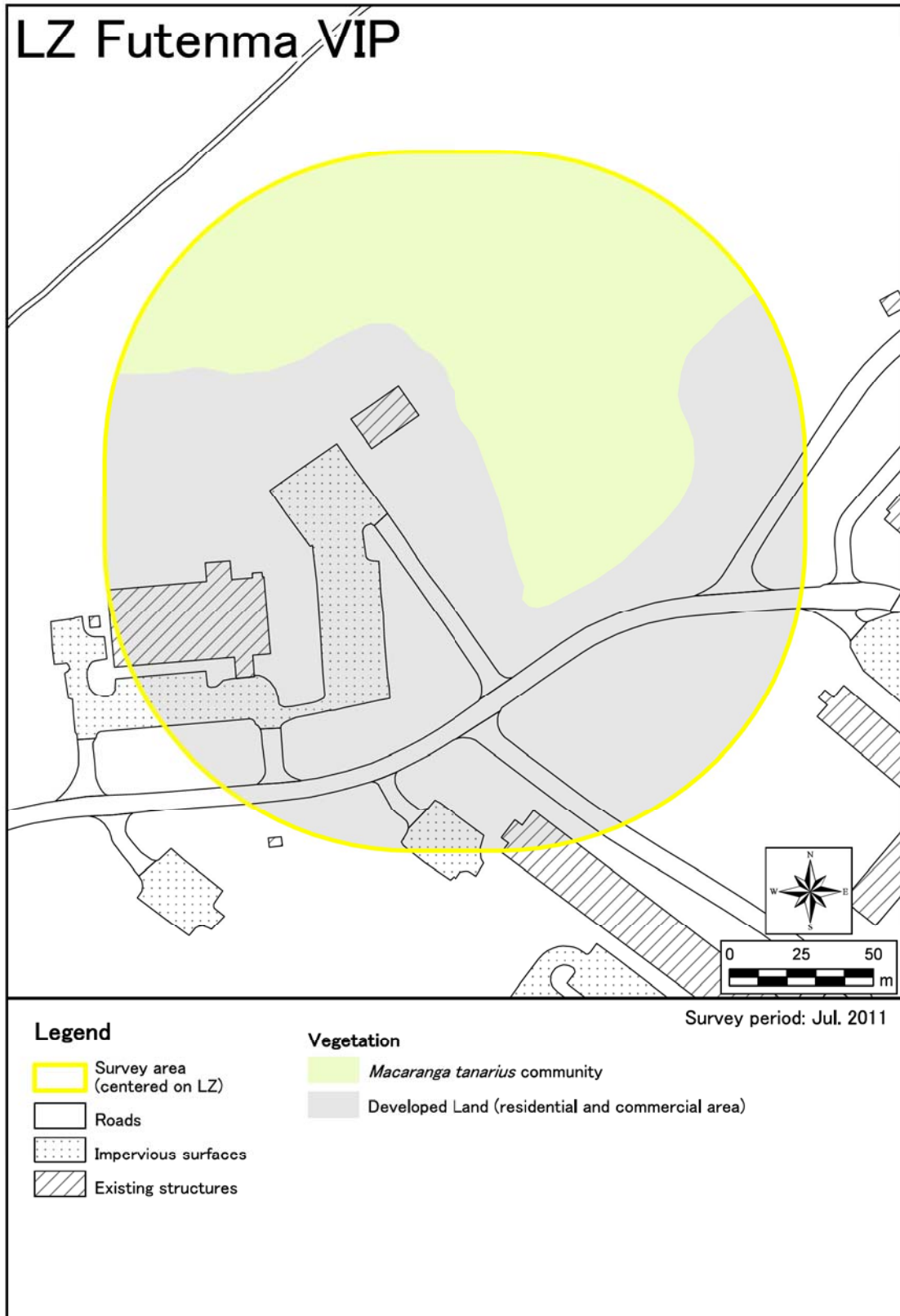


Figure 1-32 Vegetation Near LZ Futenma VIP

Administrative Vegetation

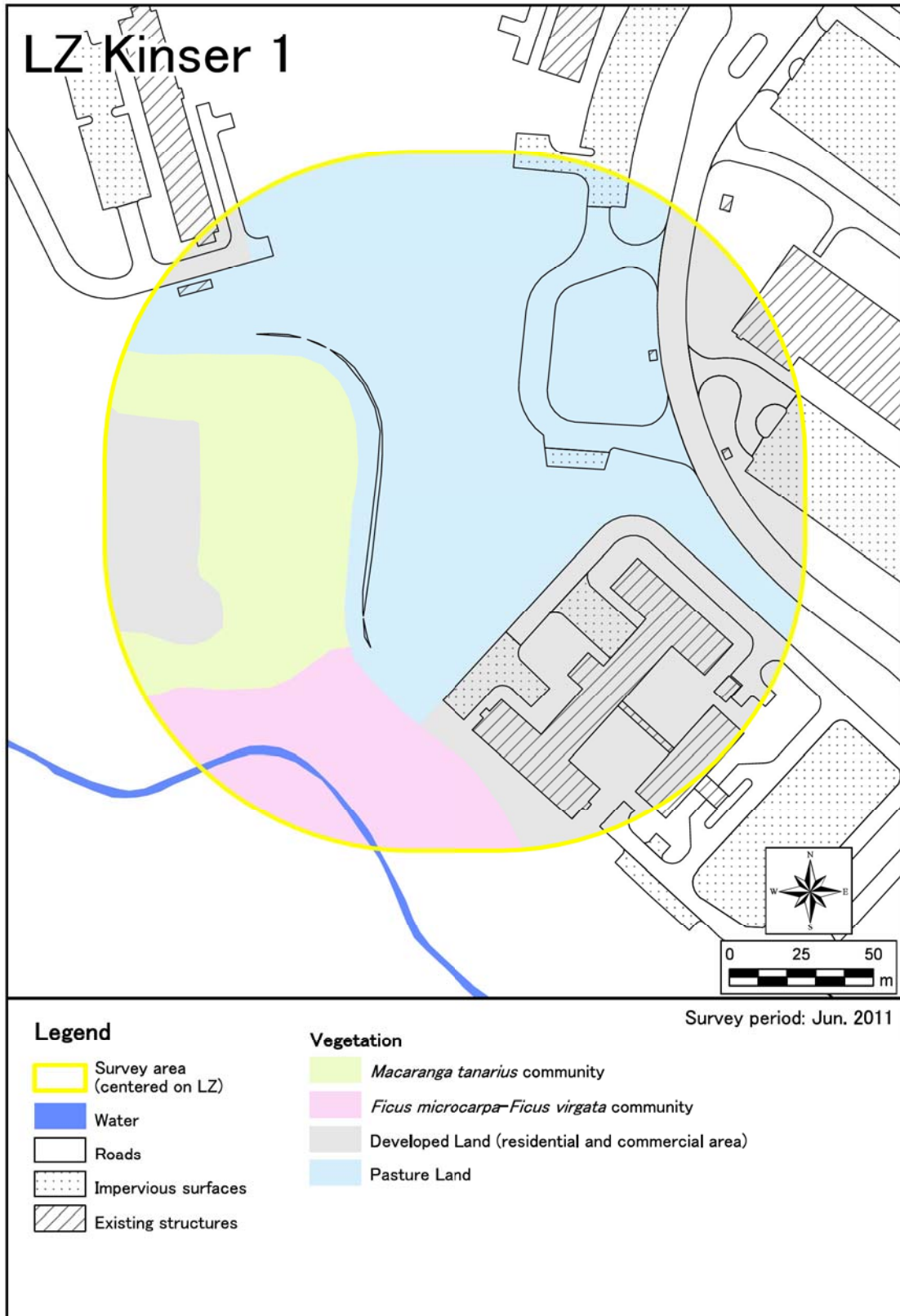


Figure 1-33 Vegetation Near LZ Kinser 1

Administrative Vegetation

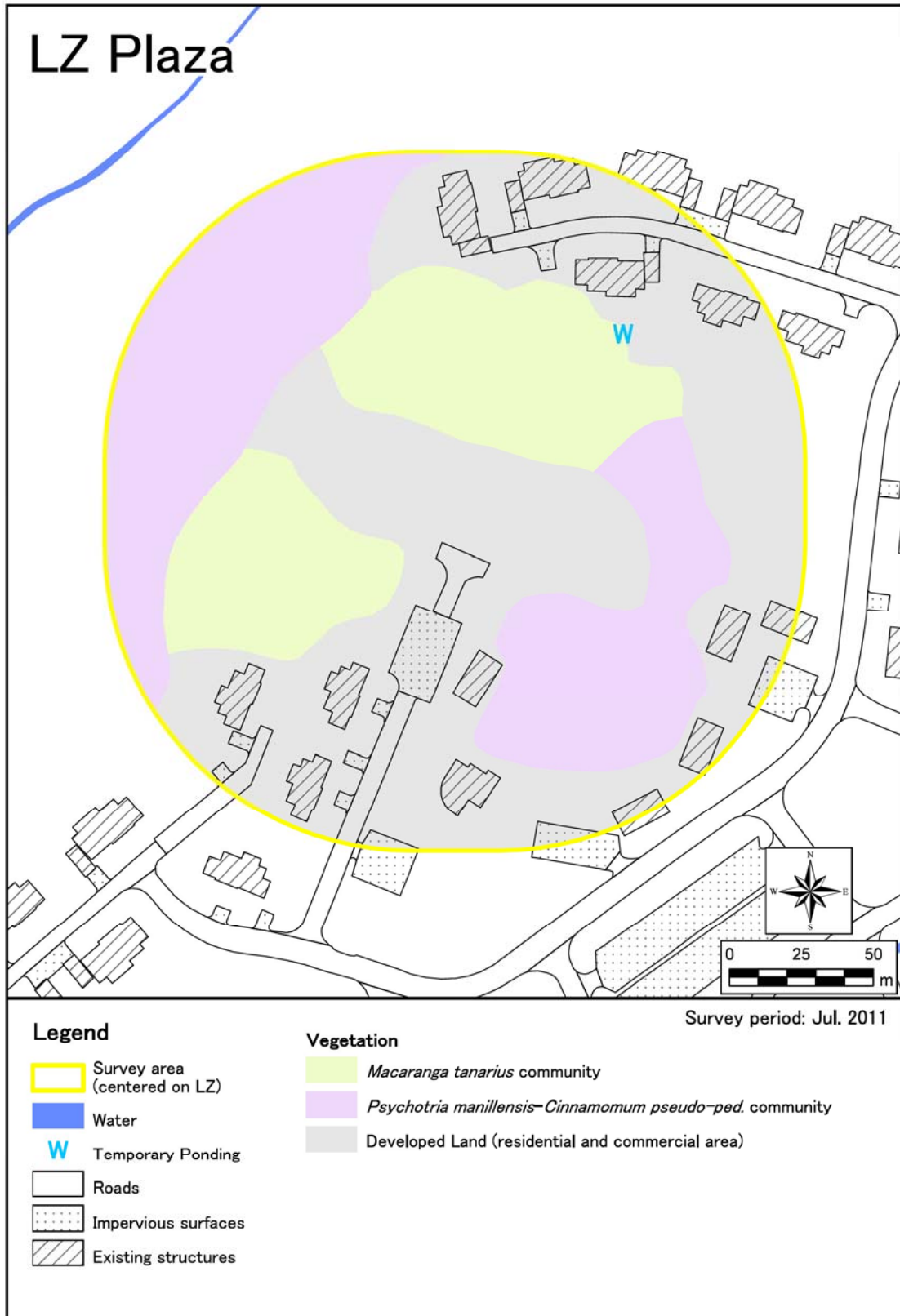


Figure 1-34 Vegetation Near LZ Plaza

Administrative Vegetation

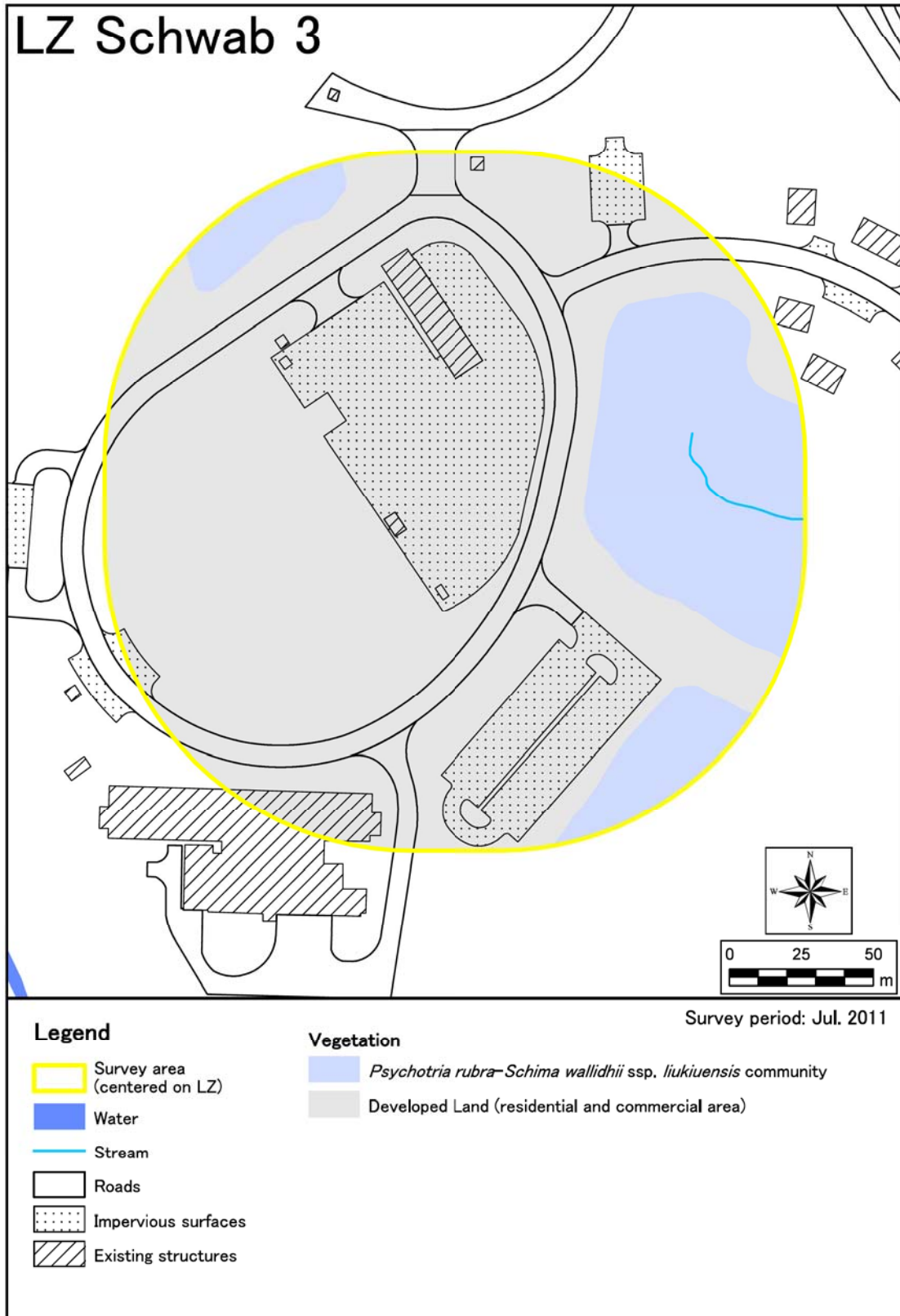


Figure 1-35 Vegetation Near LZ Schwab 3



Figure 2.A. LZ Survey Locations on Ie Shima

Ie Shima Protected Species

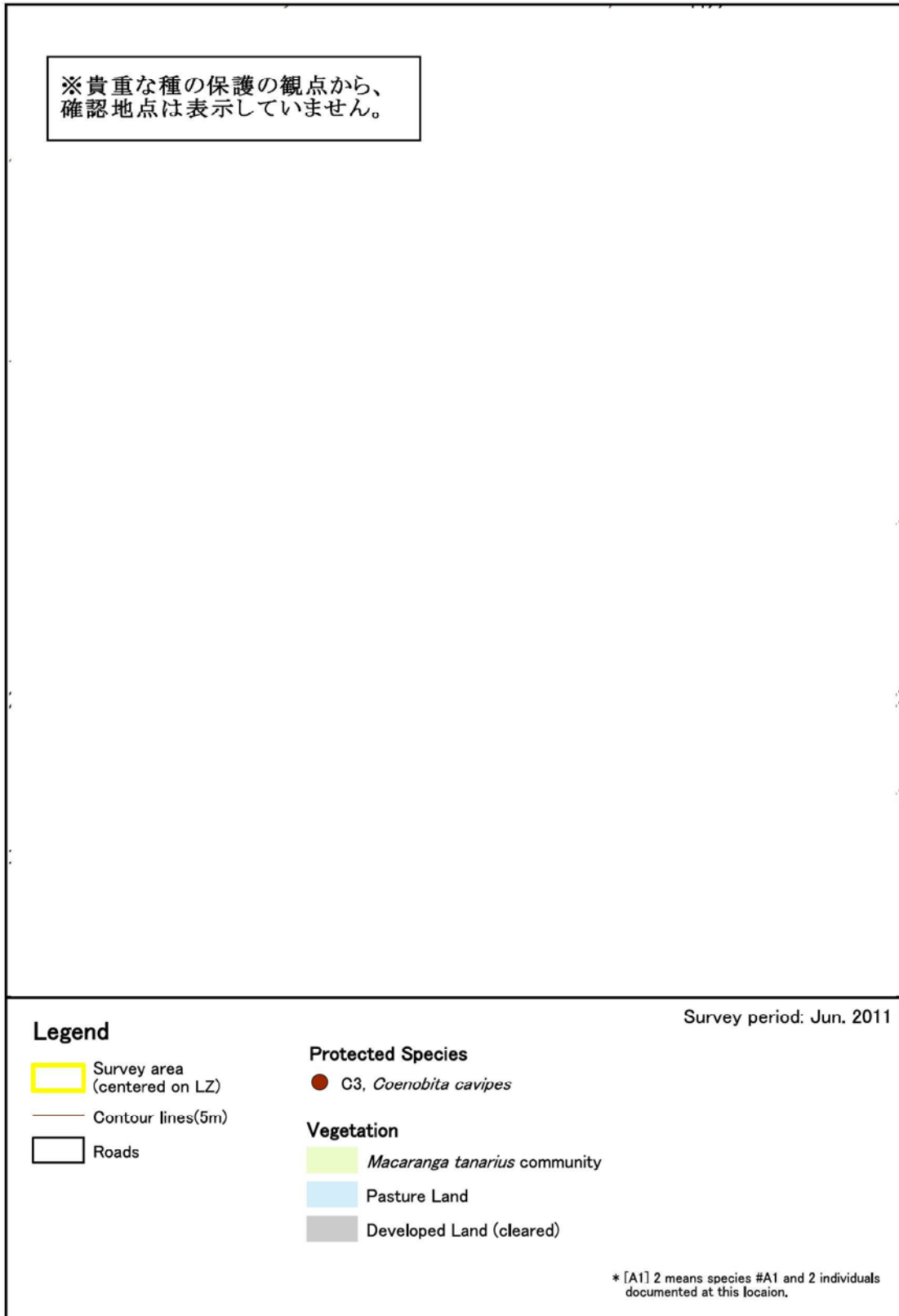
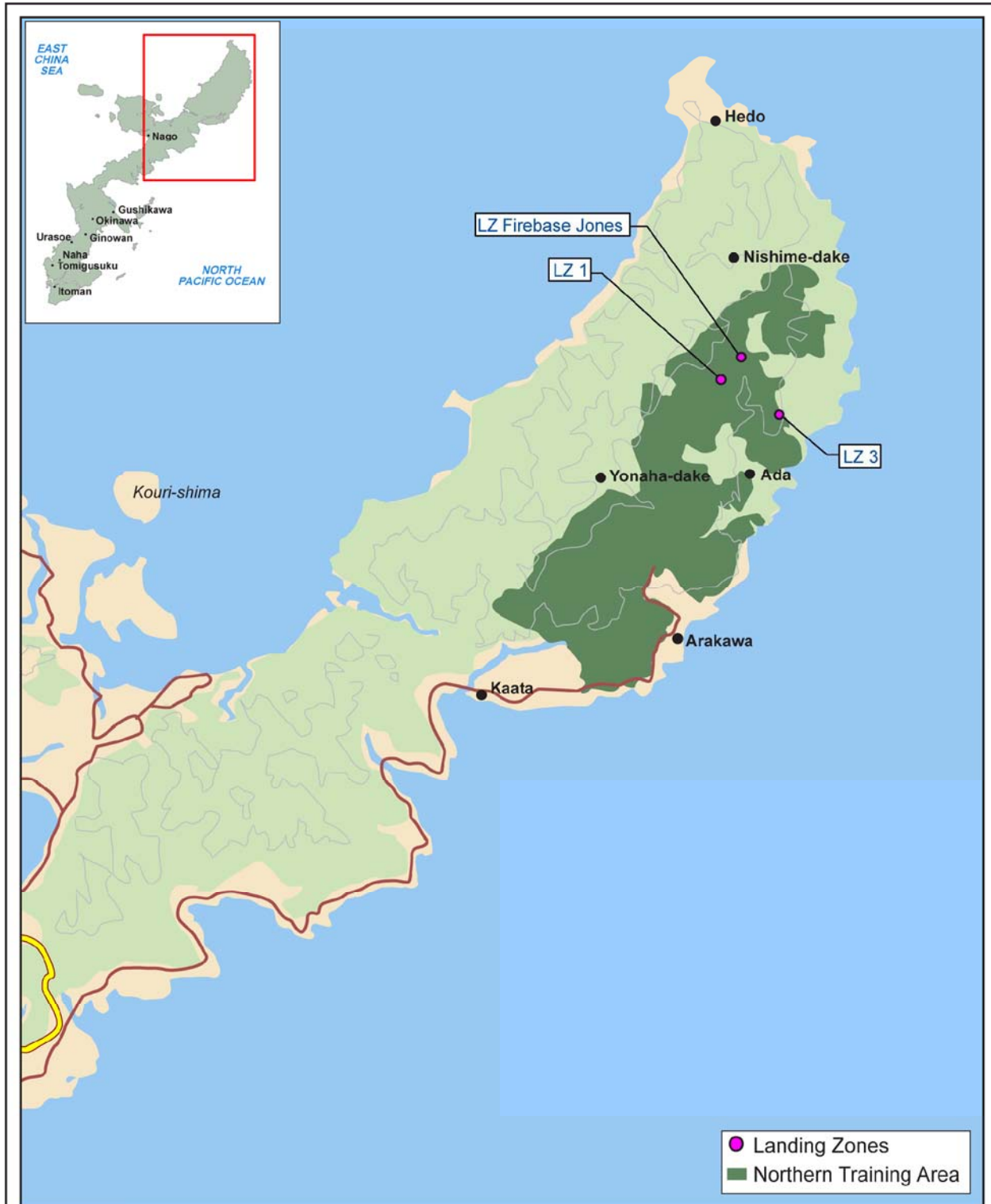


Figure 2-1 Locations of Protected Species Near LHA/LHD



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Figure 2.B. LZ Locations within the Northern Training Area



NTA Protected Species

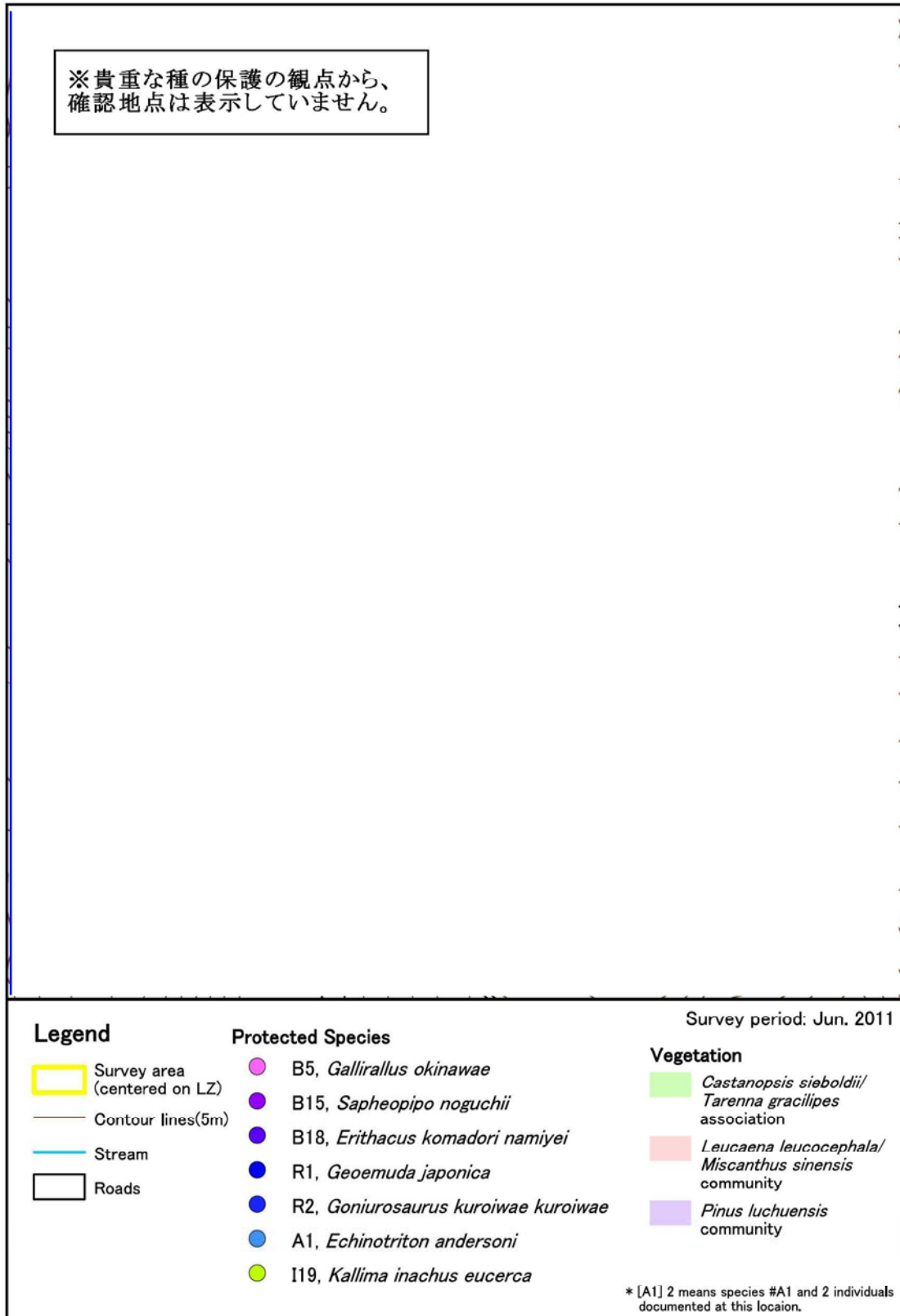


Figure 2-2 Locations of Protected Species Near LZ 1

NTA Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。

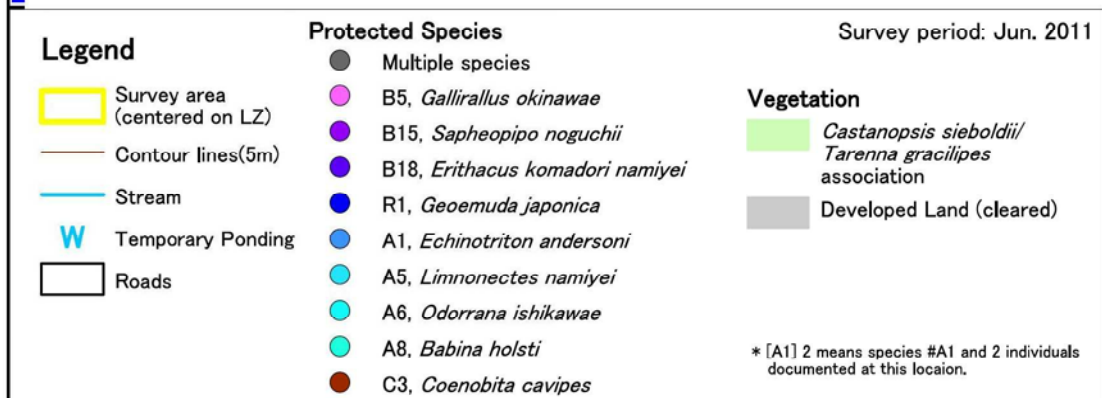


Figure 2-3 Locations of Protected Species Near LZ 3

NTA Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。

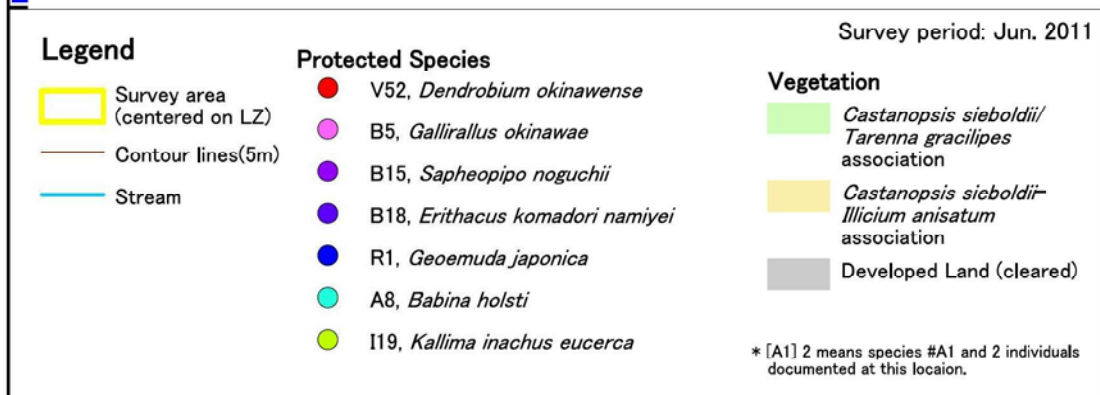


Figure 2-4 Locations of Protected Species Near LZ Firebase Jones

CTA Protected Species

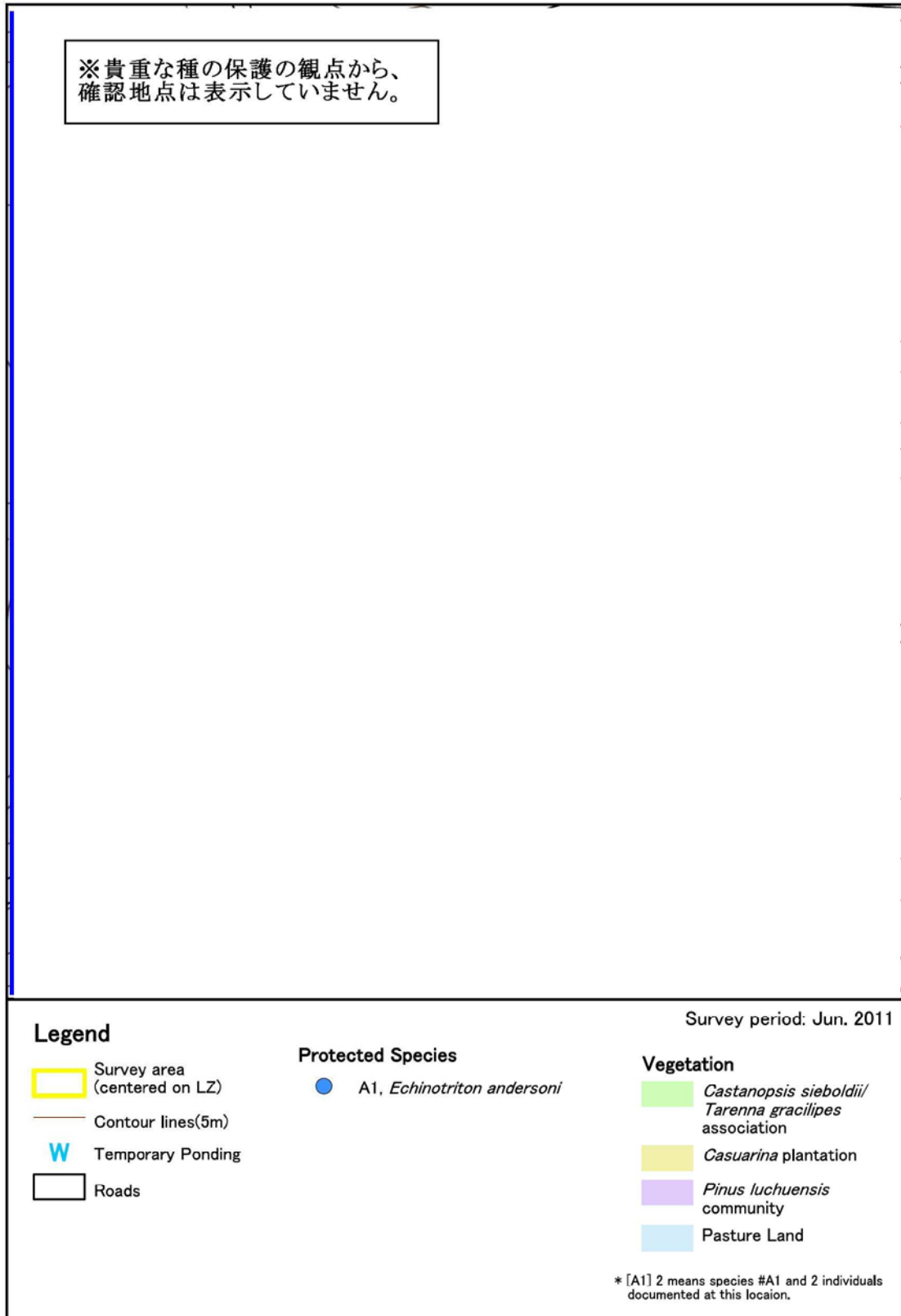


Figure 2-5 Locations of Protected Species Near LZ Buzzard

CTA Protected Species

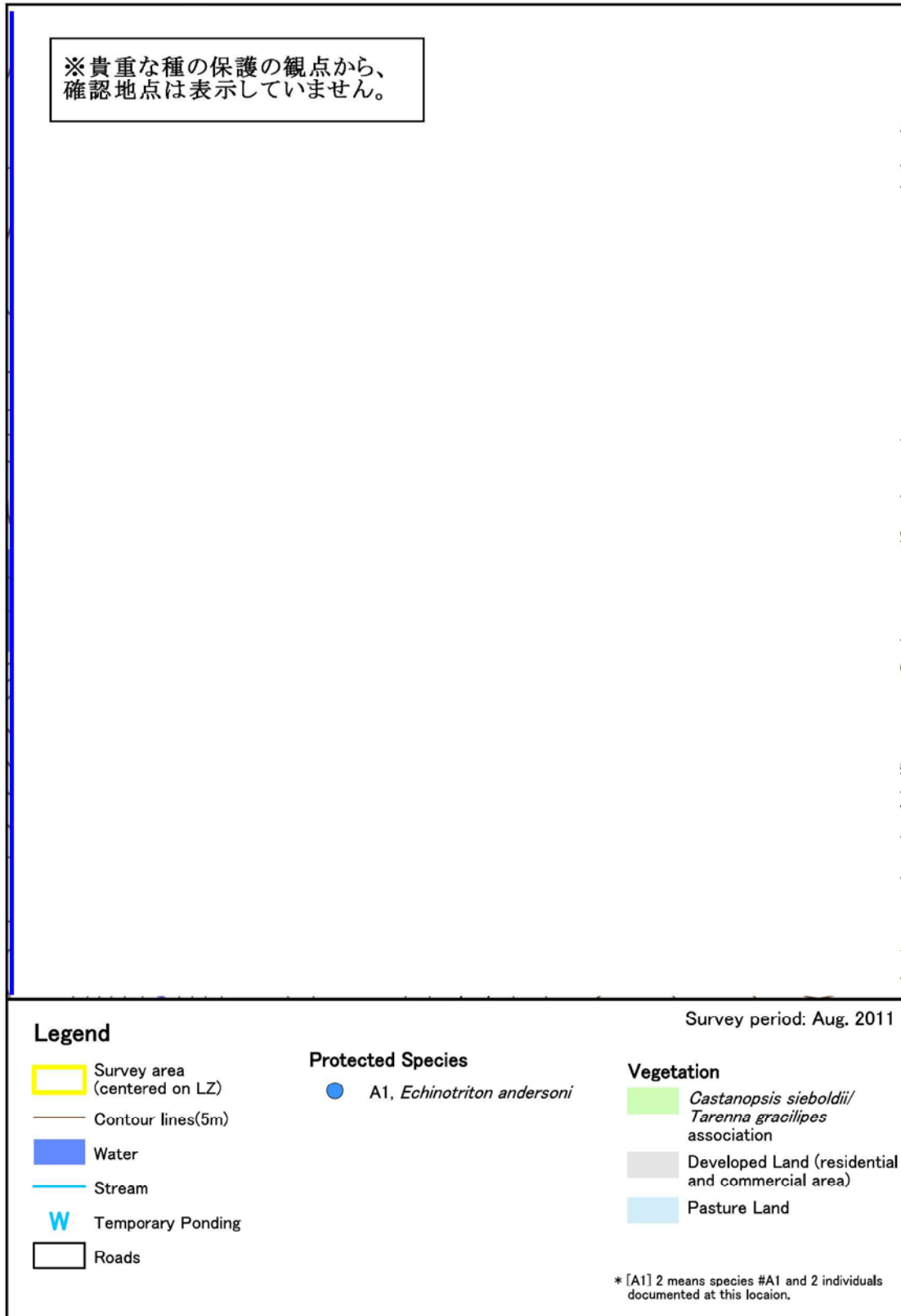


Figure 2-6 Locations of Protected Species Near LZ Cardinal

CTA Protected Species



Figure 2-7 Locations of Protected Species Near LZ Crane

CTA Protected Species

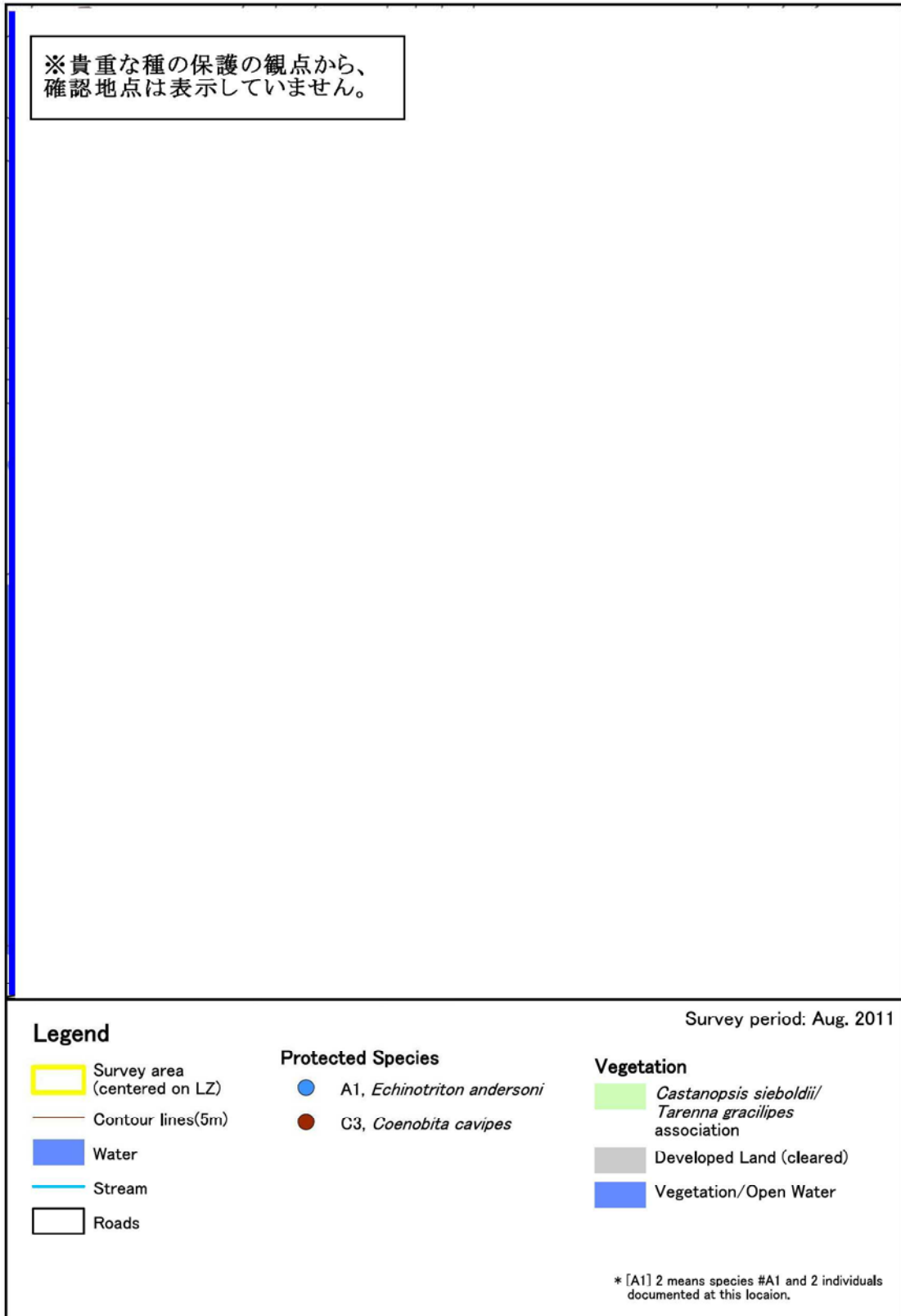


Figure 2-8 Locations of Protected Species Near LZ Gander

CTA Protected Species



Figure 2-9 Locations of Protected Species Near LZ Goose

CTA Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。



Figure 2-10 Locations of Protected Species Near LZ Kin Blue

CTA Protected Species

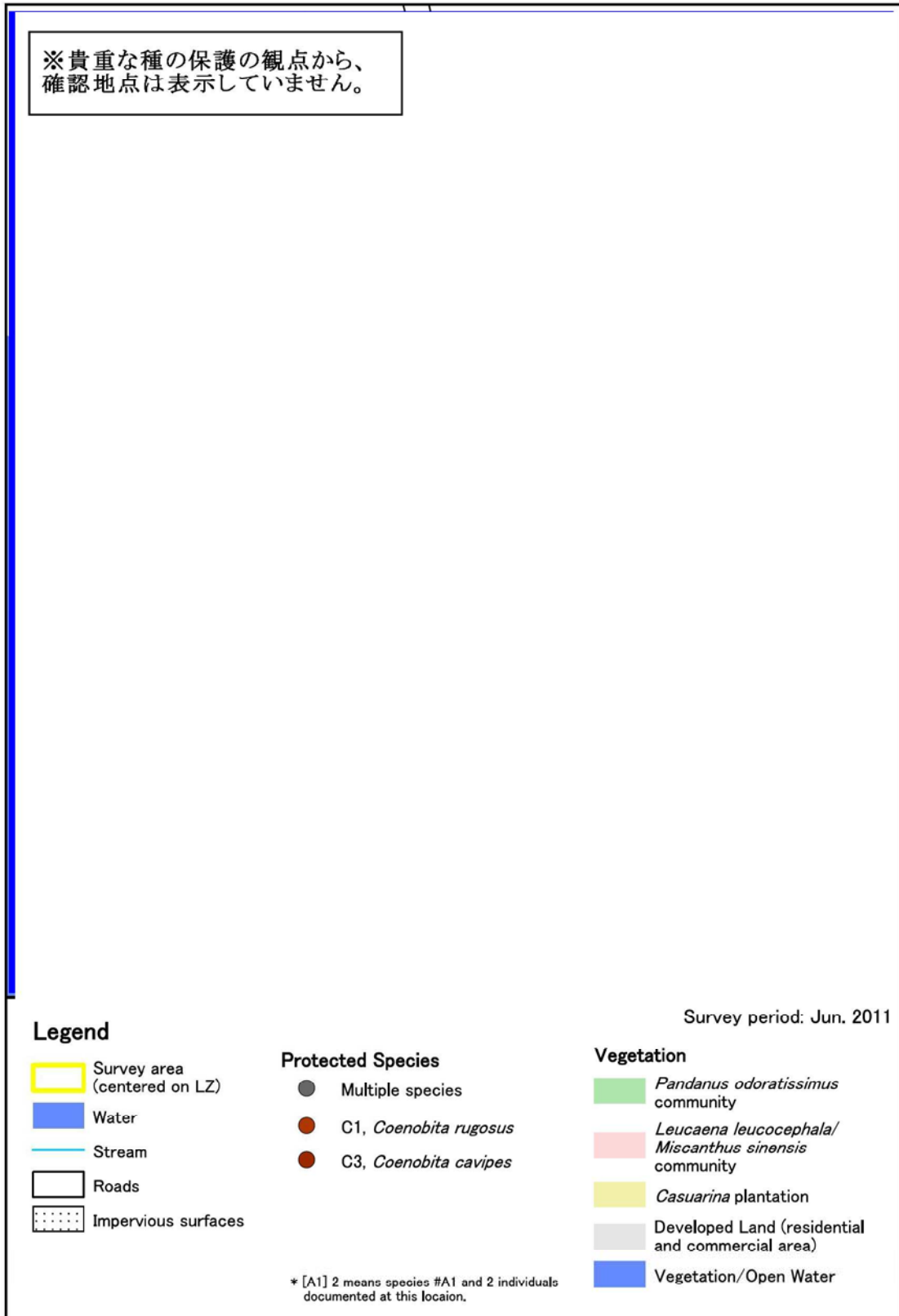


Figure 2-11 Locations of Protected Species Near LZ Kin Red (Alt)

CTA Protected Species

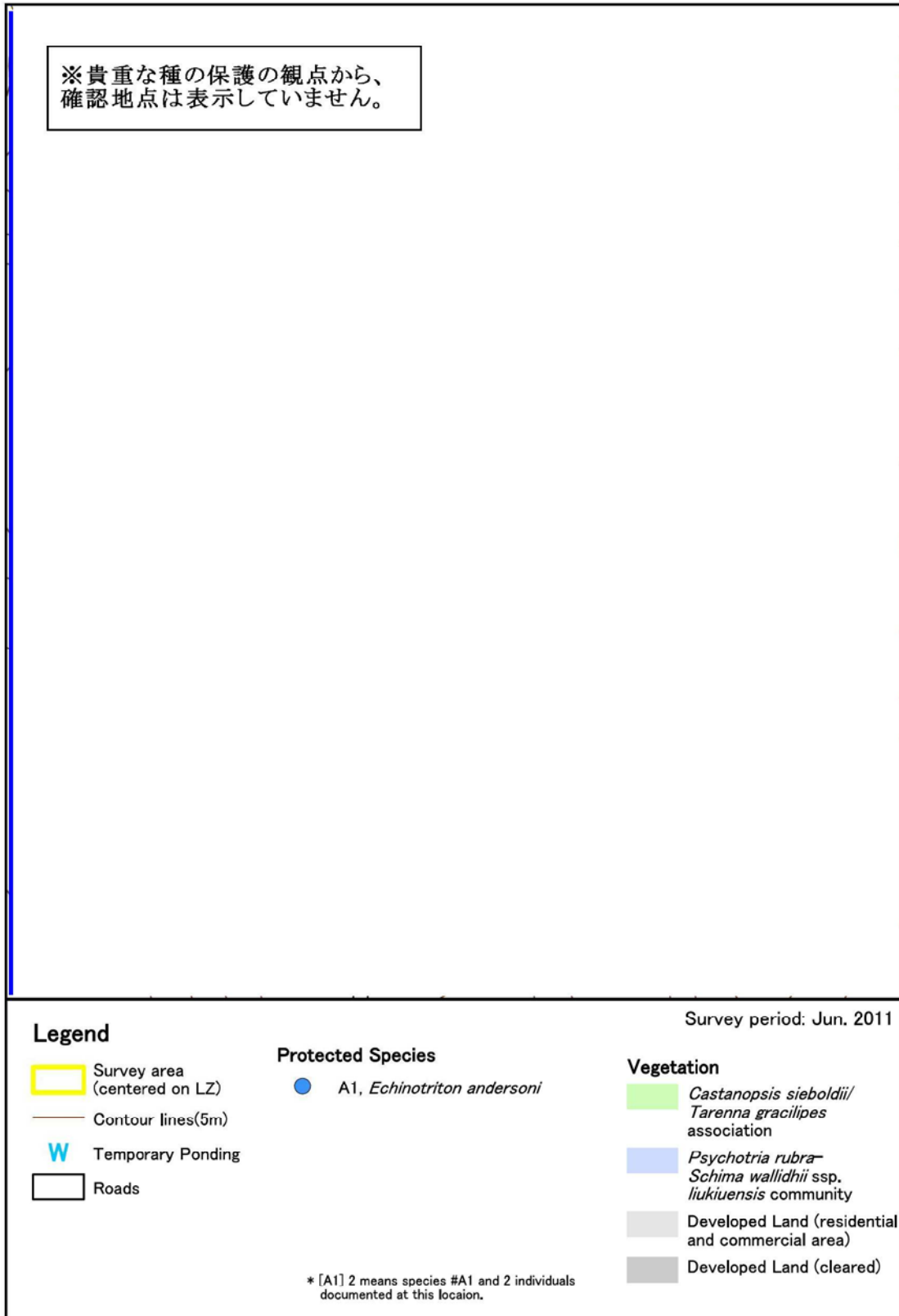


Figure 2-12 Locations of Protected Species Near LZ Petrel

CTA Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。

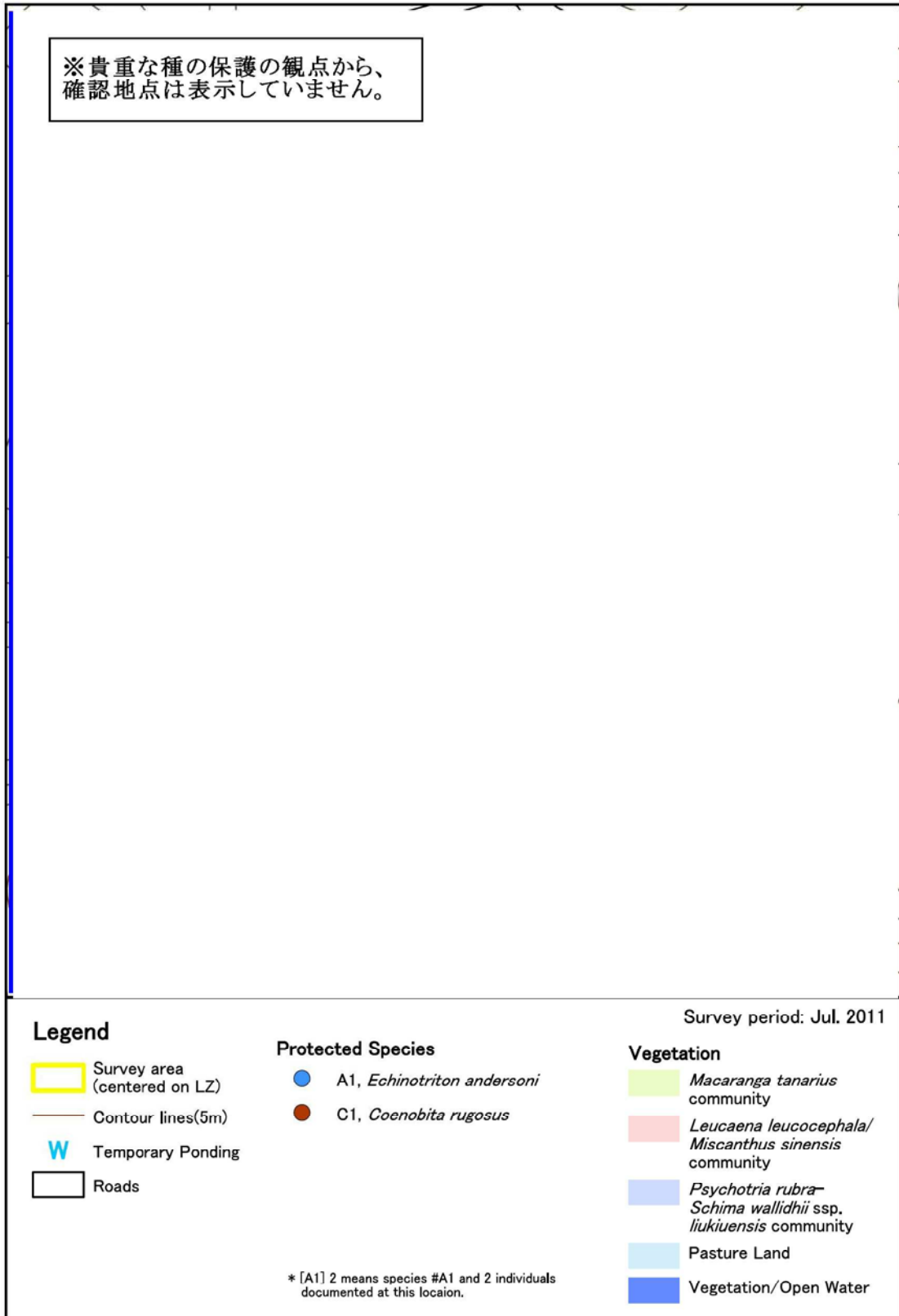


Figure 2-13 Locations of Protected Species Near LZ Phoenix

CTA Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。

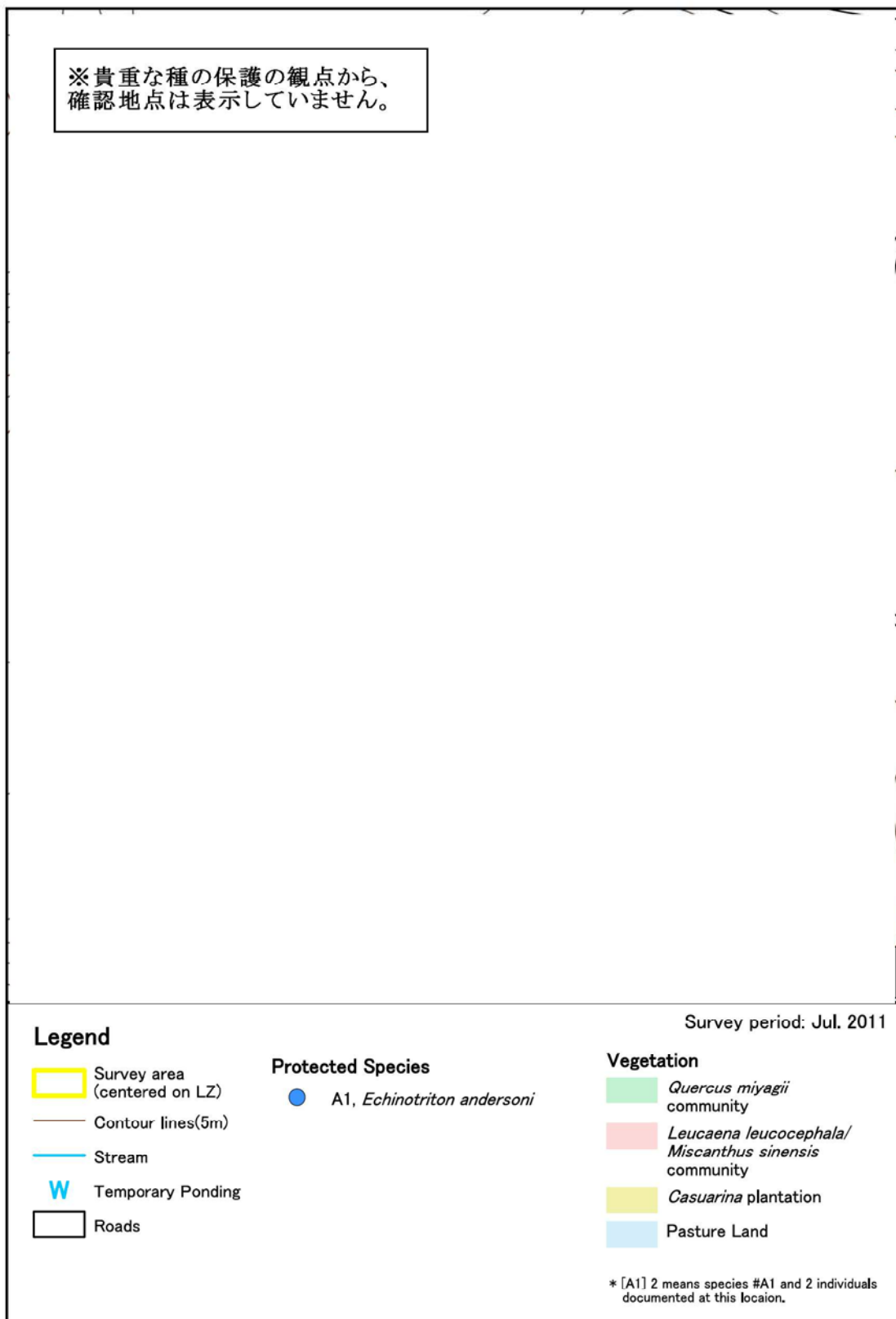


Figure 2-14 Locations of Protected Species Near LZ Rail

CTA Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。

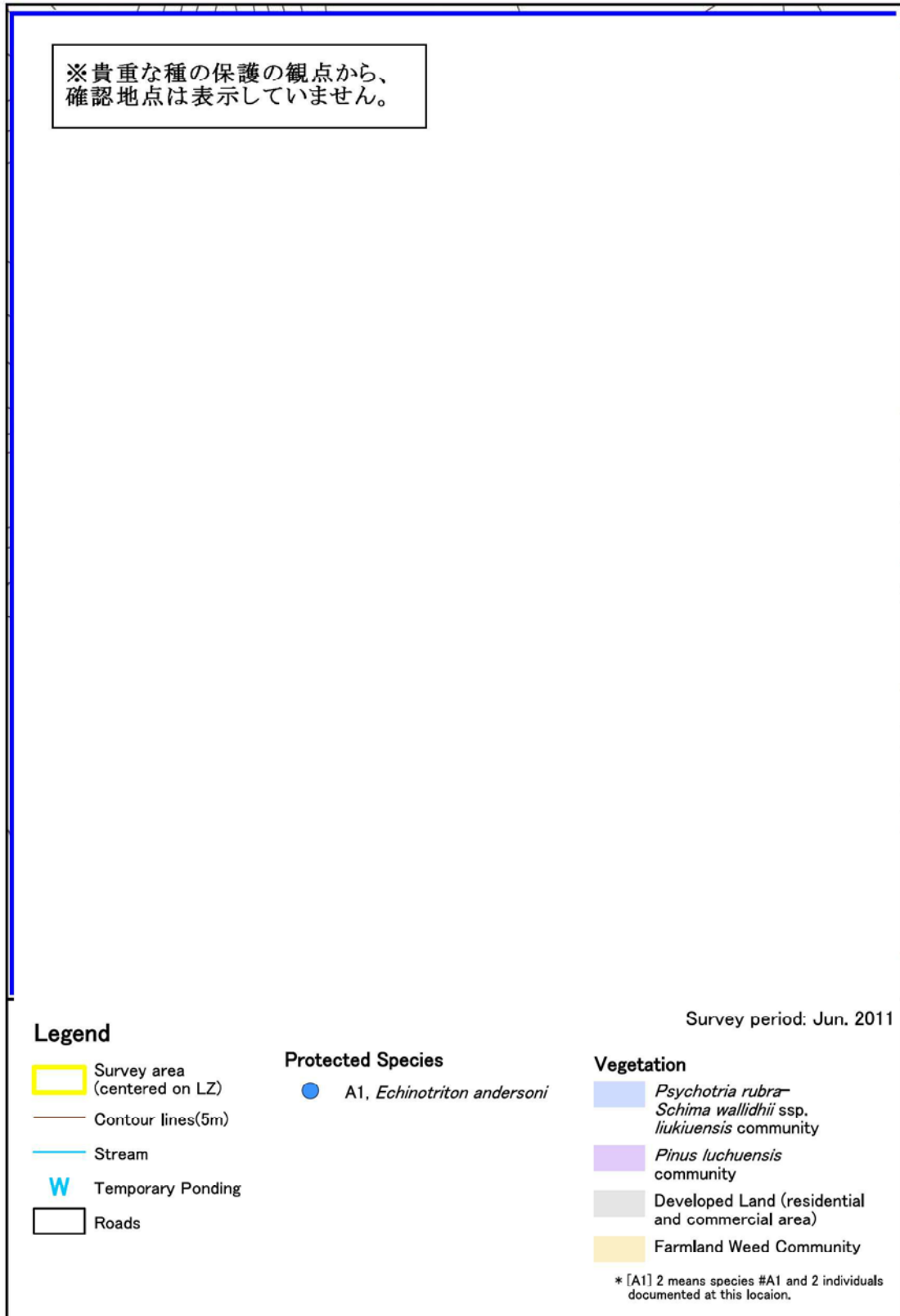


Figure 2-15 Locations of Protected Species Near LZ Raven

CTA Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。



Figure 2-16 Locations of Protected Species Near LZ Swan

CTA Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。

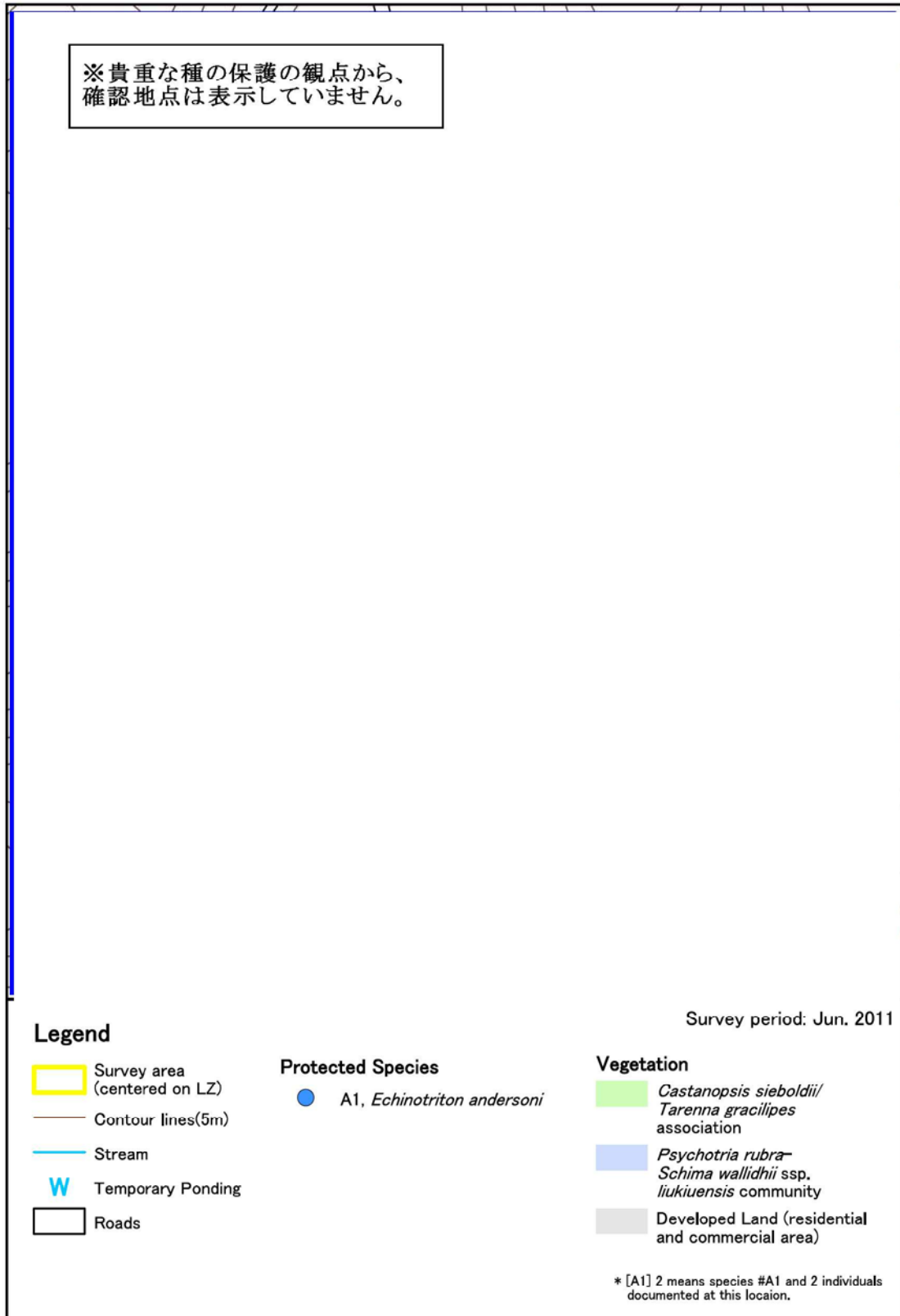


Figure 2-17 Locations of Protected Species Near LZ Tern

CTA Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。

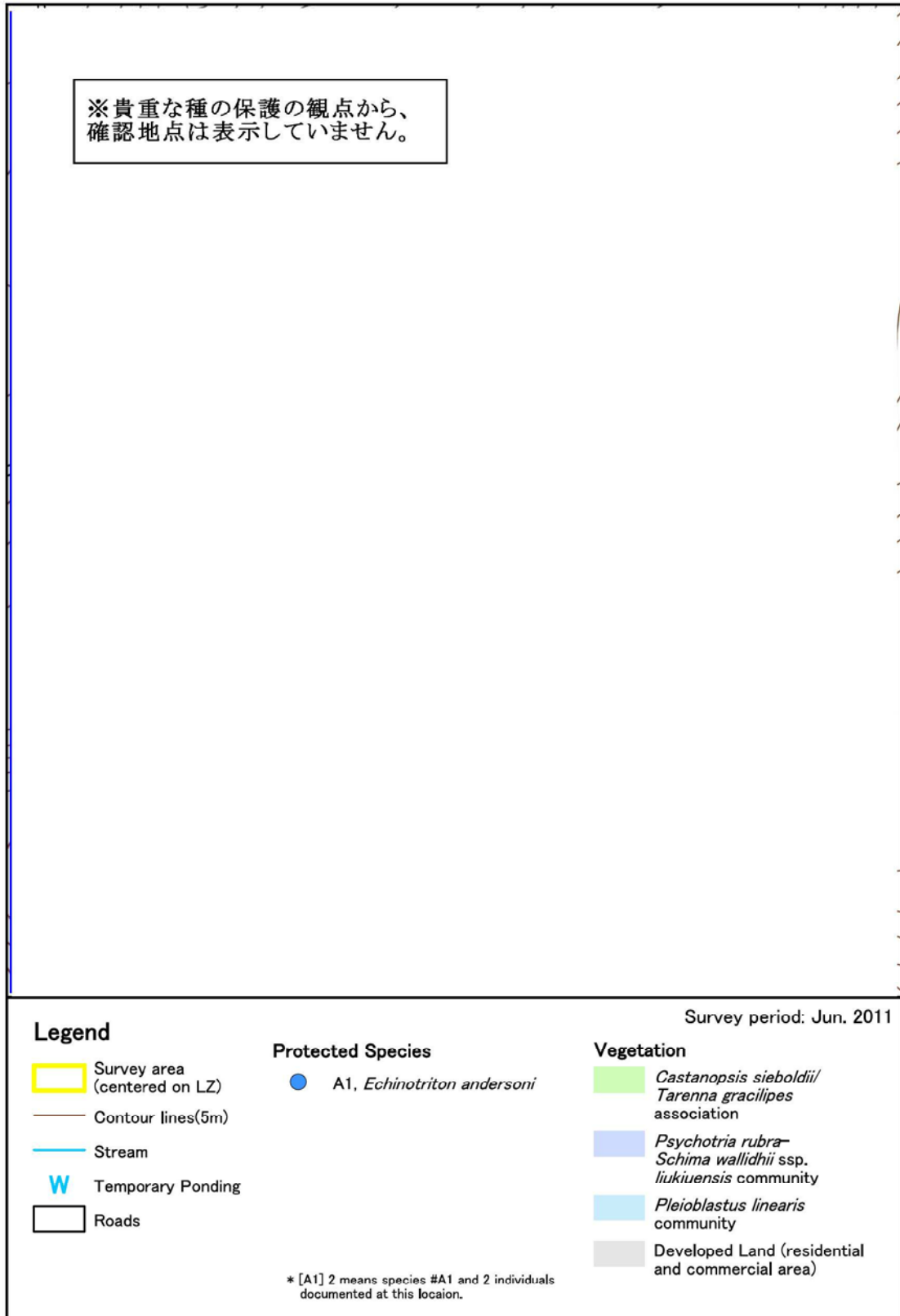
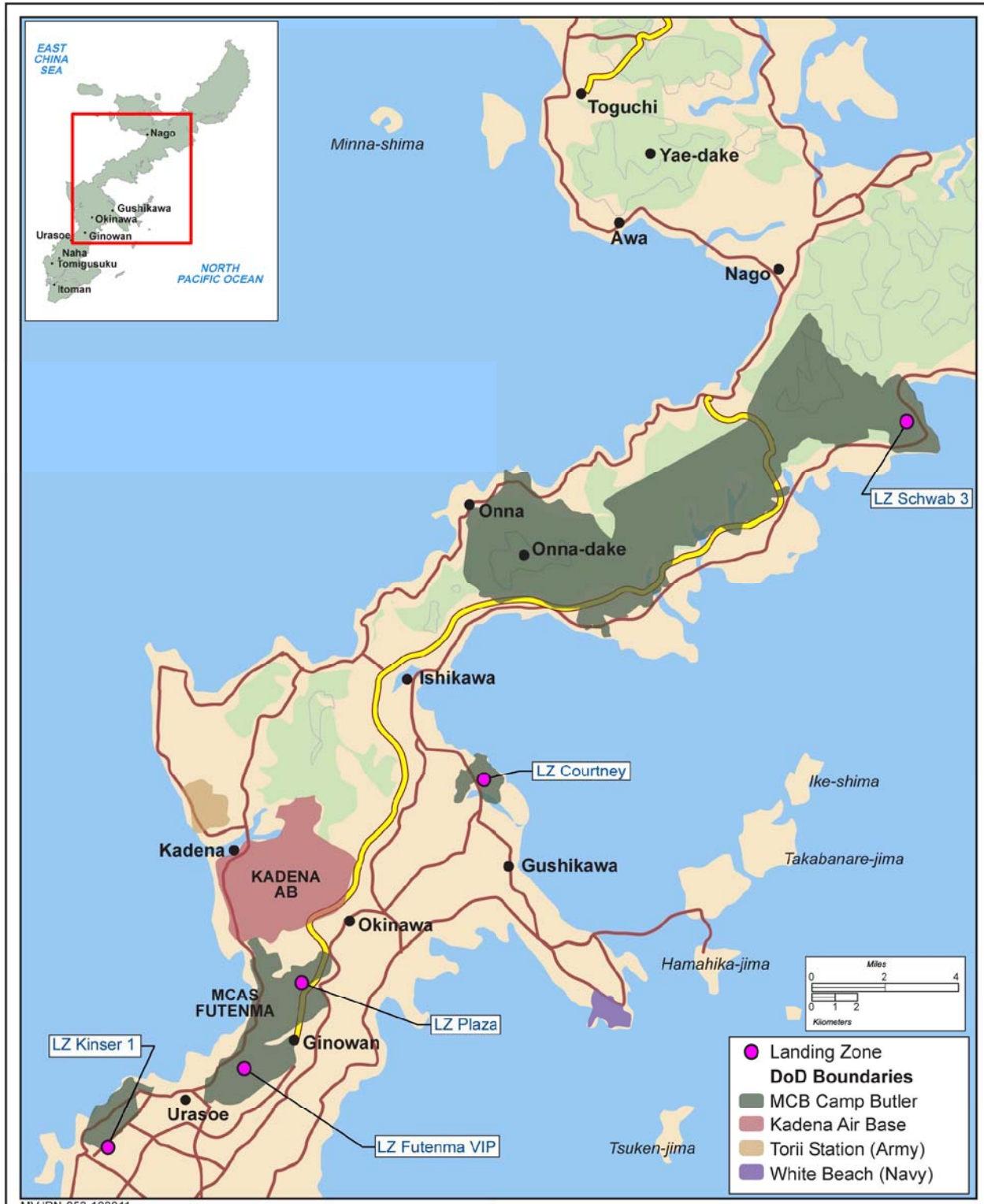
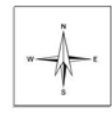


Figure 2-18 Locations of Protected Species Near LZ Wren



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Figure 2.D. LZ Locations within the Administrative Area



Administrative Protected Species

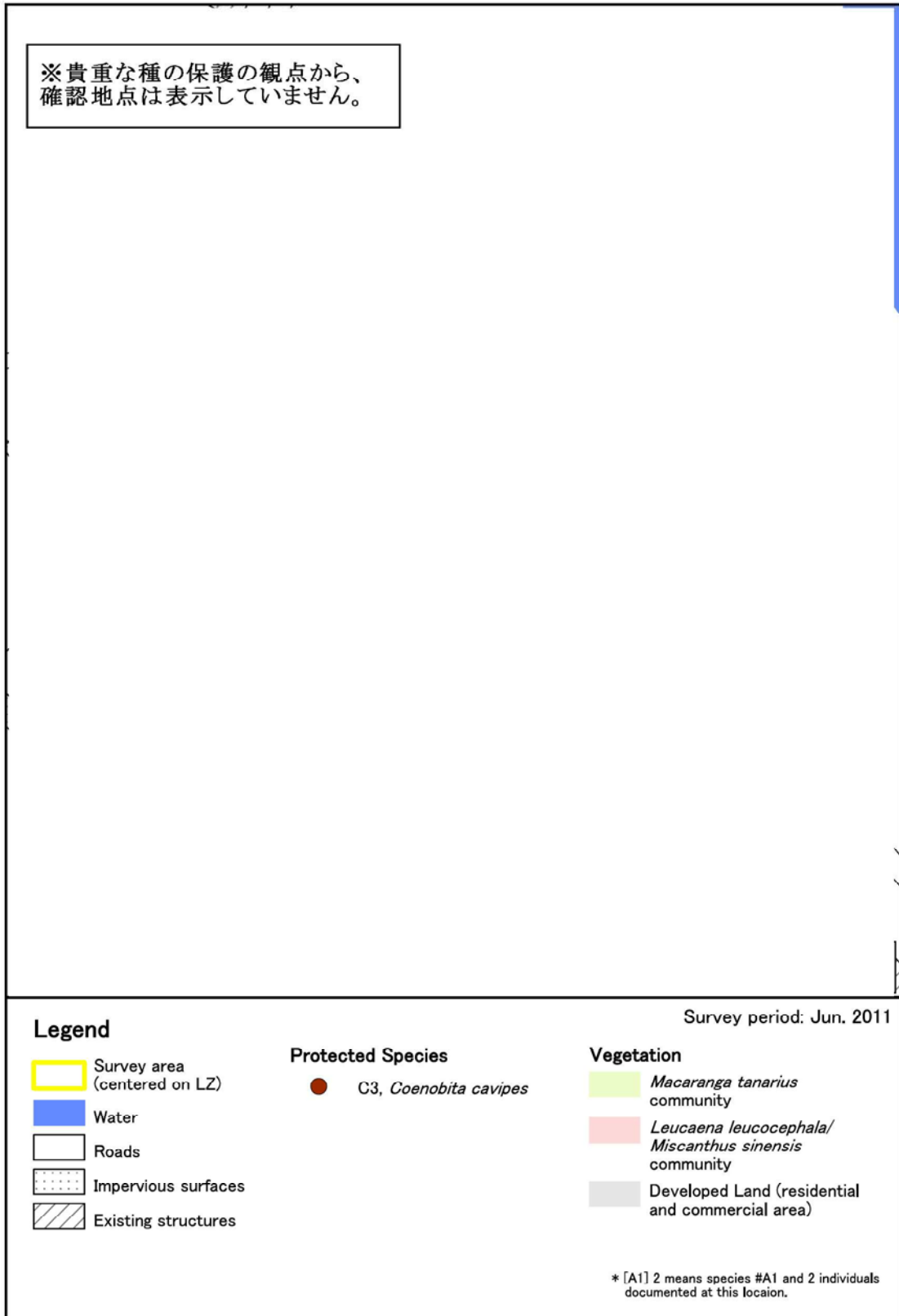


Figure 2-19 Locations of Protected Species Near LZ Courtney

Administrative Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。

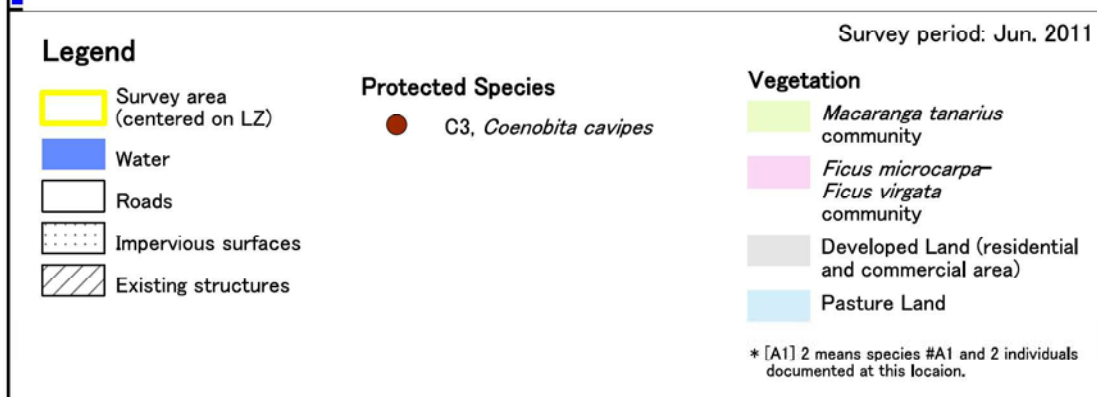


Figure 2-20 Locations of Protected Species Near LZ Kinser 1

Administrative Protected Species

※貴重な種の保護の観点から、
確認地点は表示していません。

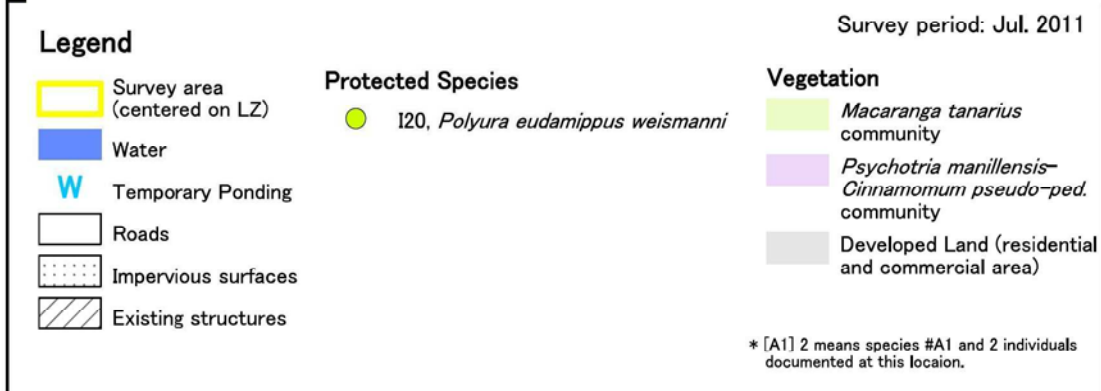


Figure 2-21 Locations of Protected Species Near LZ Plaza



Figure 3.A. LZ Survey Locations on Ie Shima

Ie Shima Red Listed Species



Figure 3-1 Locations of Red List Fauna Species Near LHA/LHD

Ie Shima Red Listed Species

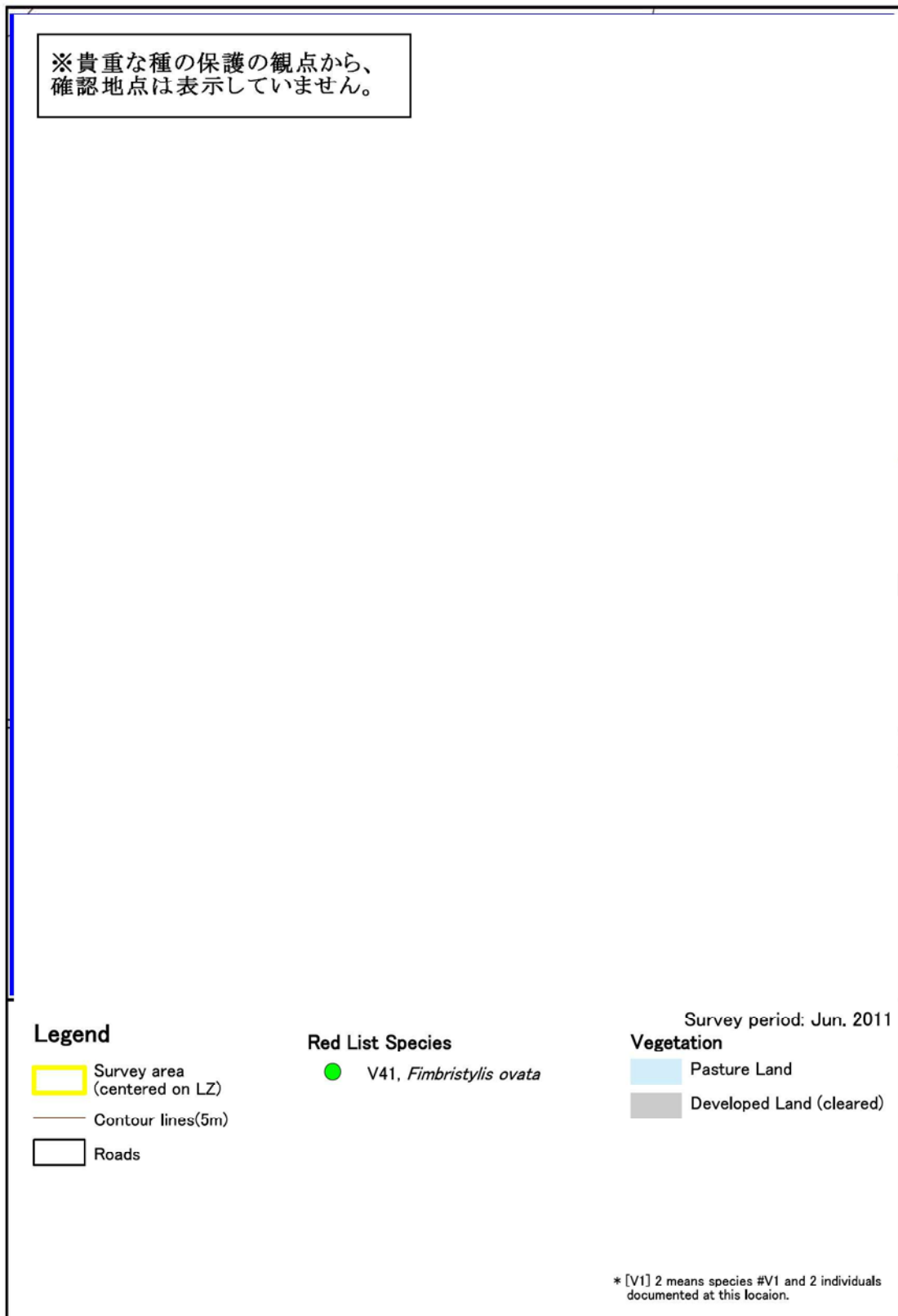


Figure 3-2(1) Locations of Red List Flora Species Near Coral Runway

Ie Shima Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

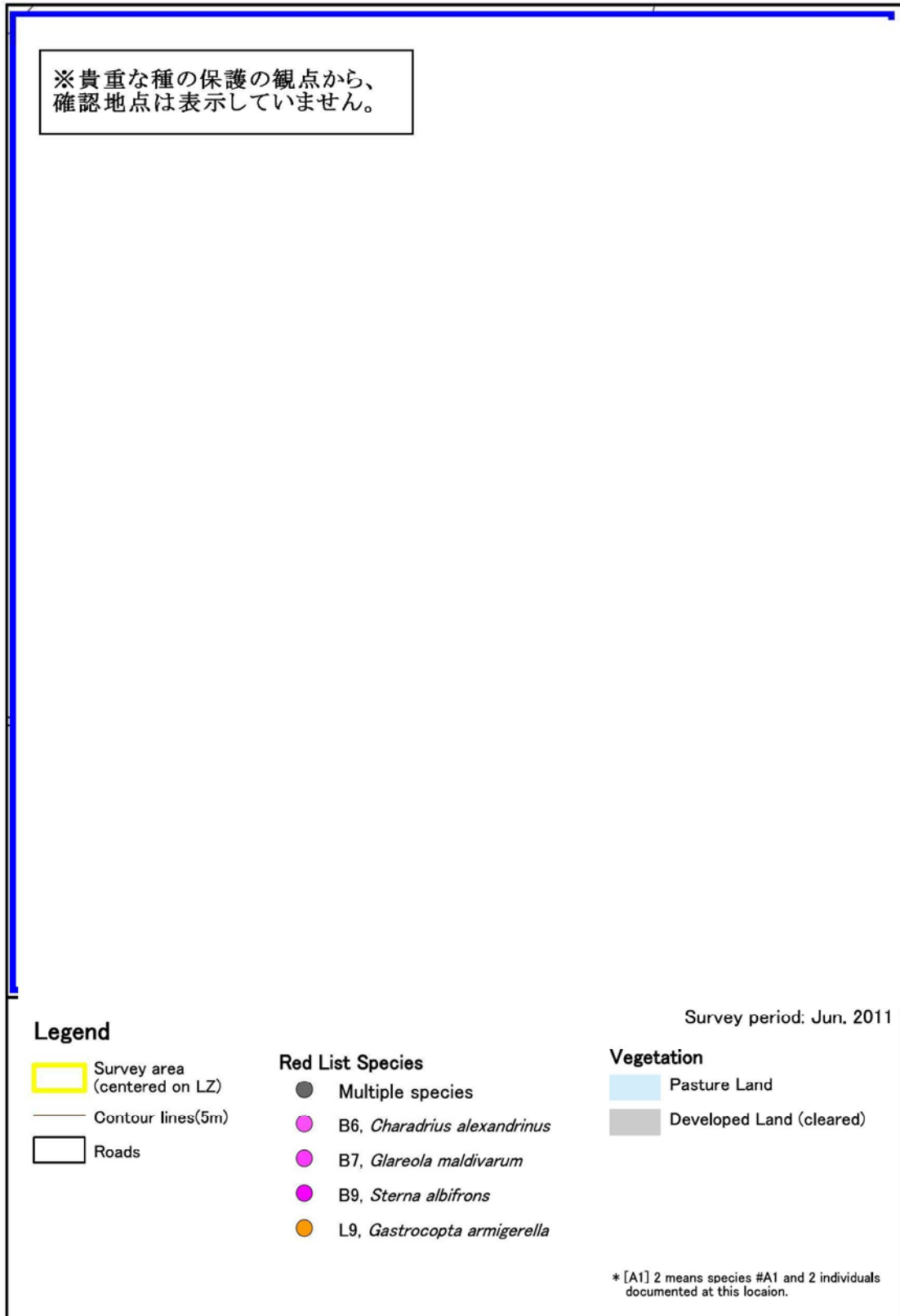


Figure 3-2(2) Locations of Red List Fauna Species Near Coral Runway

Ie Shima Red Listed Species

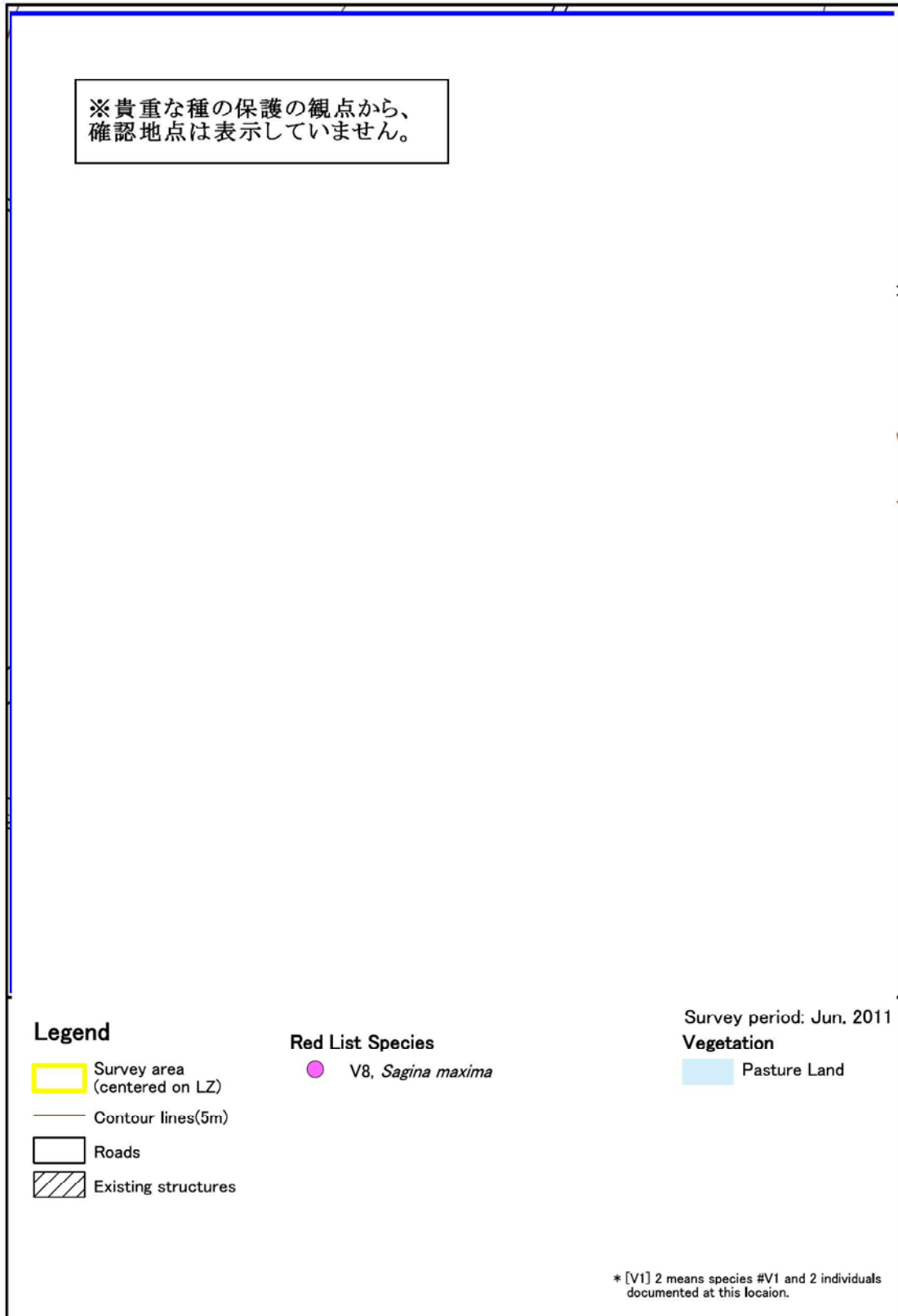


Figure 3-3(1) Locations of Red List Flora Species Near Sling Load

Ie Shima Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

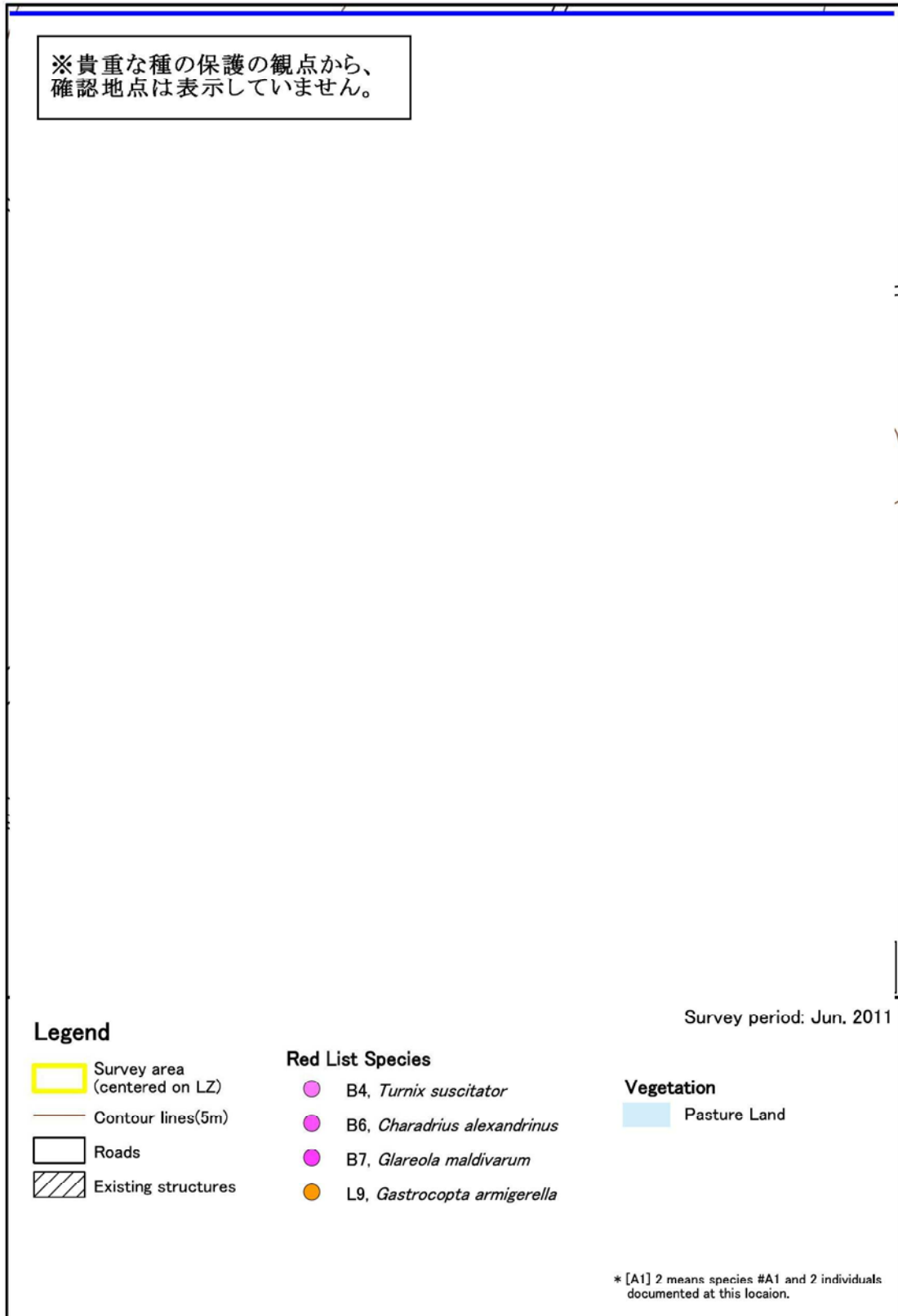


Figure 3-3(2) Locations of Red List Fauna Species Near Sling Load

Ie Shima Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

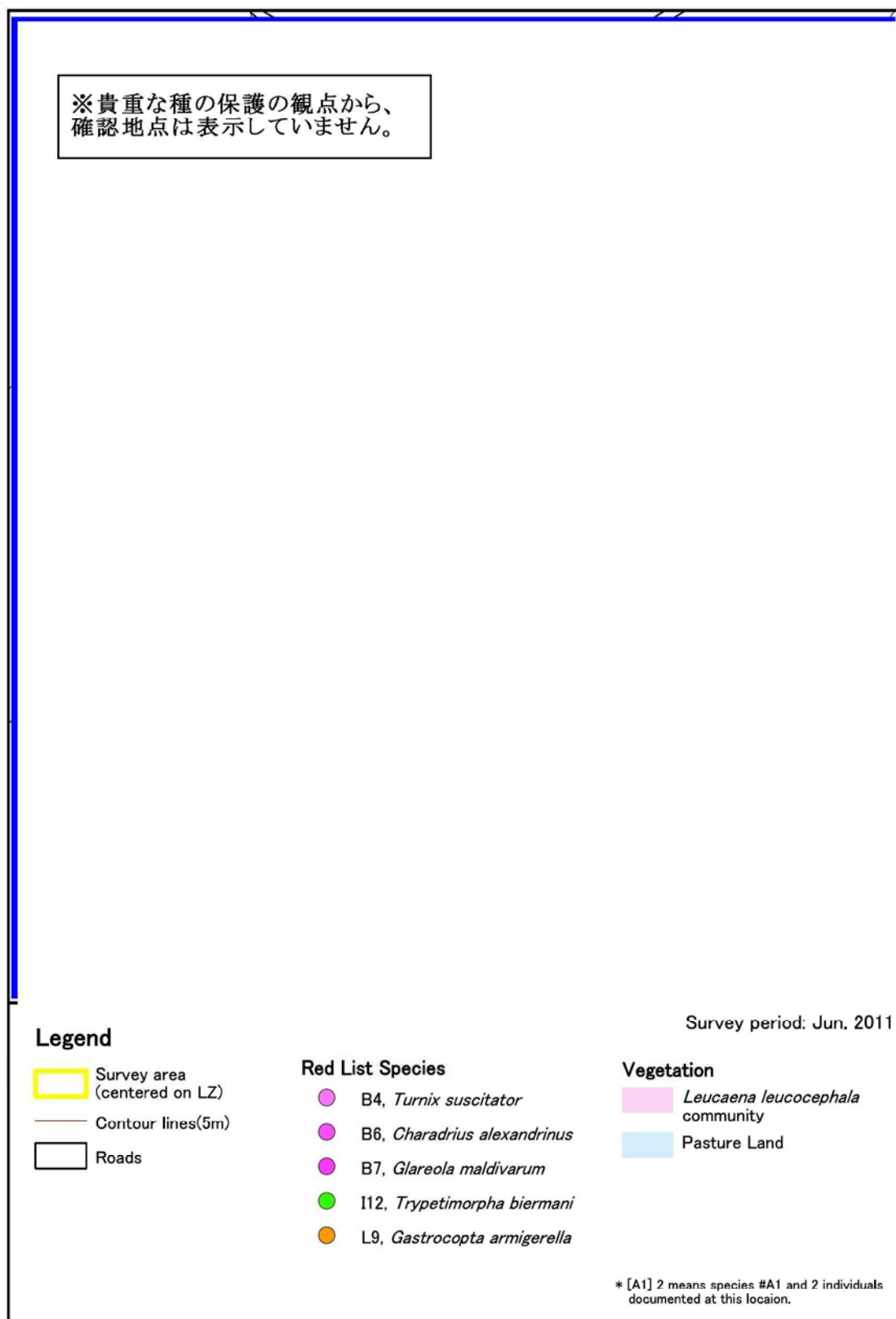


Figure 3-4 Locations of Red List Fauna Species Near Sling Load Alternative

Ie Shima Red Listed Species

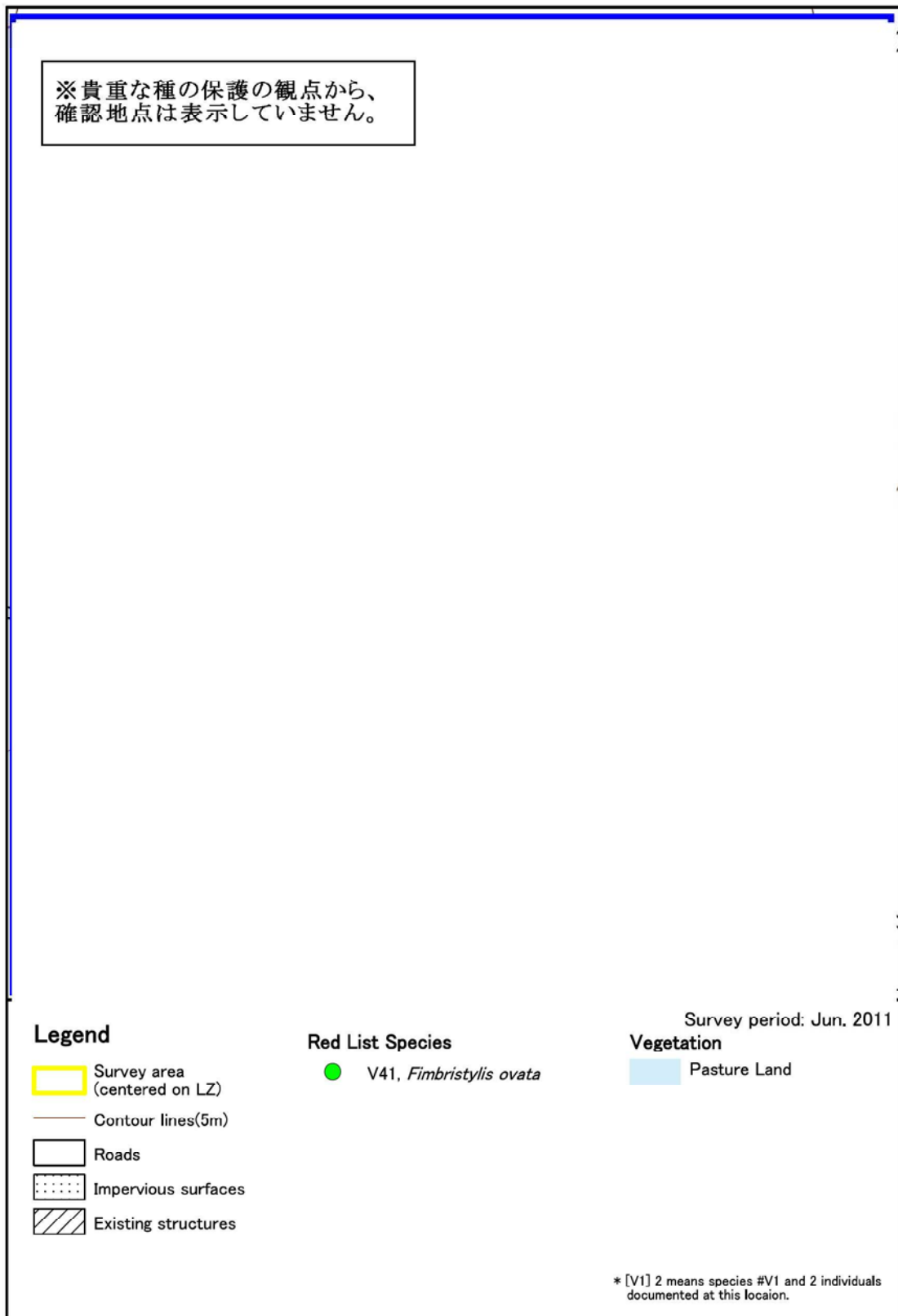


Figure 3-5(1) Locations of Red List Flora Species Near VIP Helipad

Ie Shima Red Listed Species

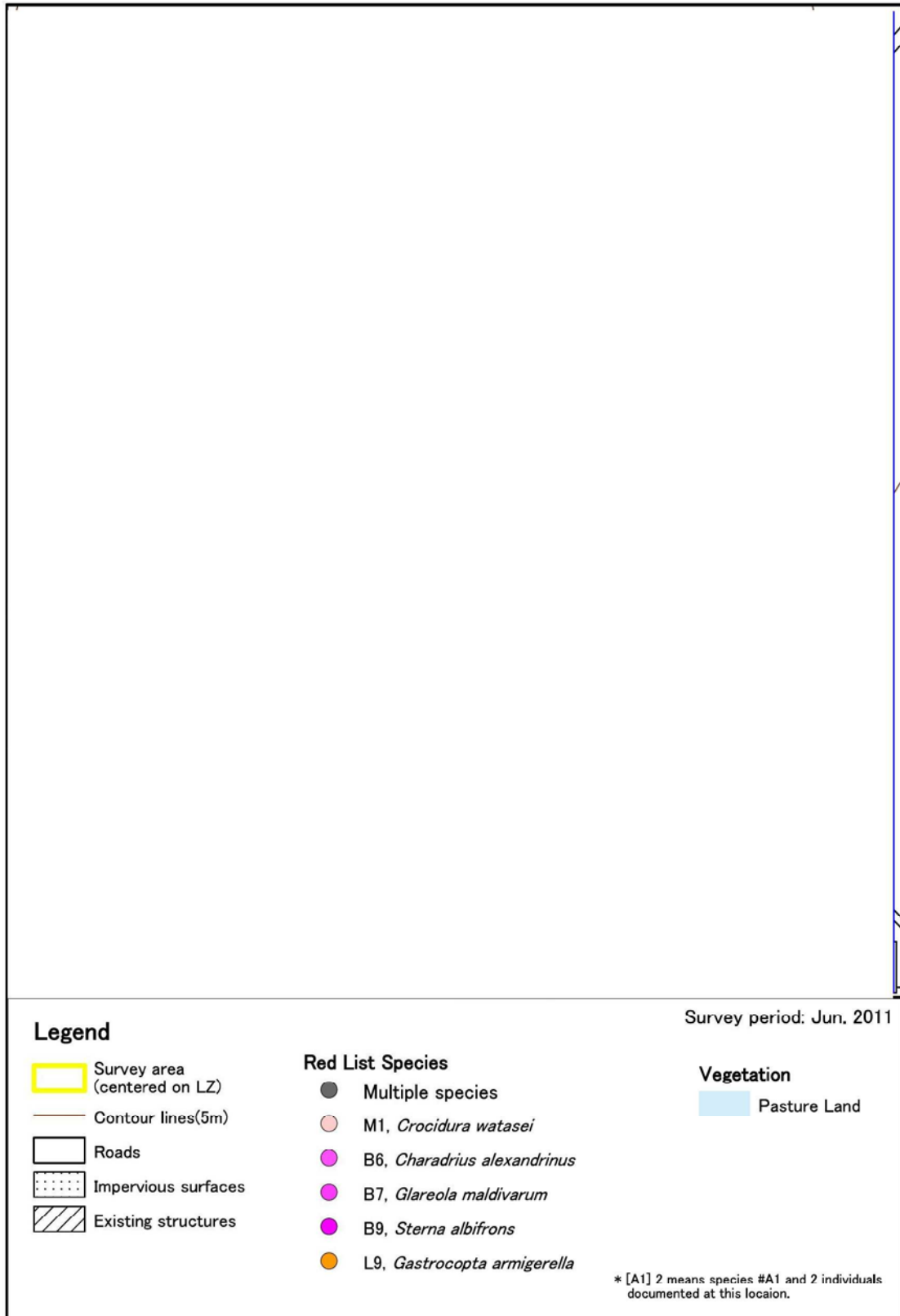
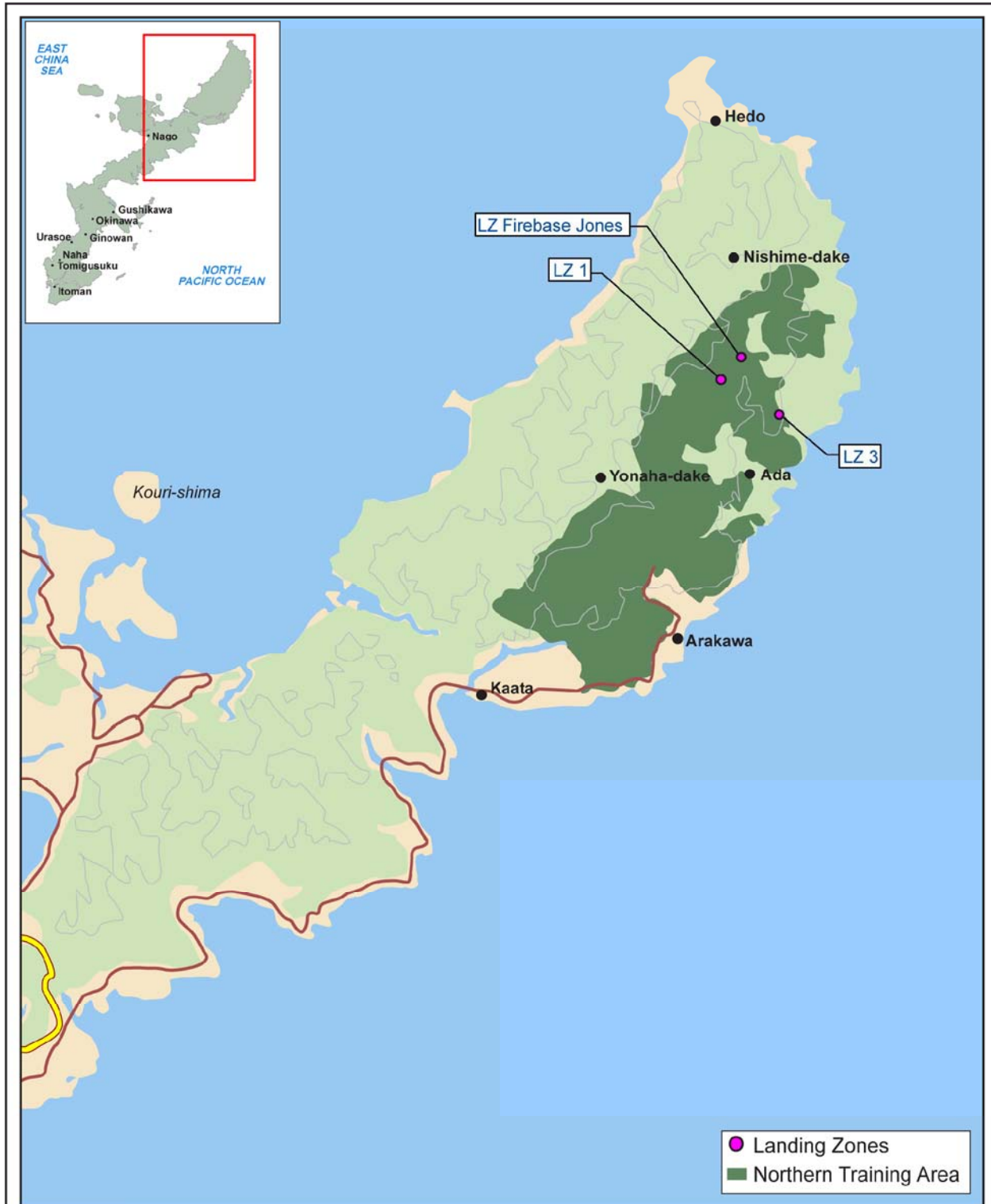


Figure 3-5(2) Locations of Red List Fauna Species Near VIP Helipad

Ie Shima Red Listed Species



Figure 3-6 Locations of Red List Fauna Species Near Drop Zone



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Figure 3.B. LZ Locations within the Northern Training Area



NTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

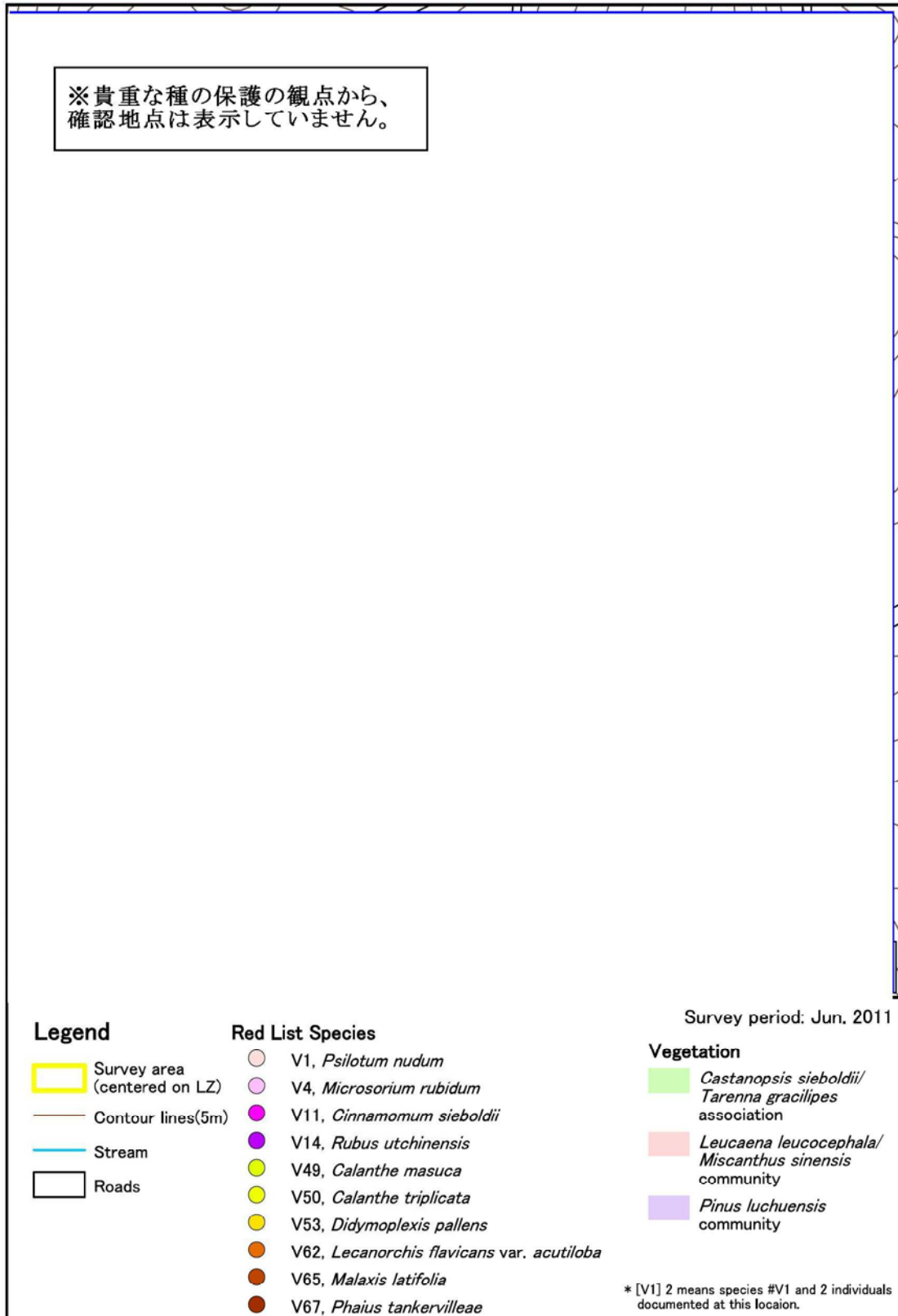


Figure 3-7(1) Locations of Red List Flora Species Near LZ 1

NTA Red Listed Species

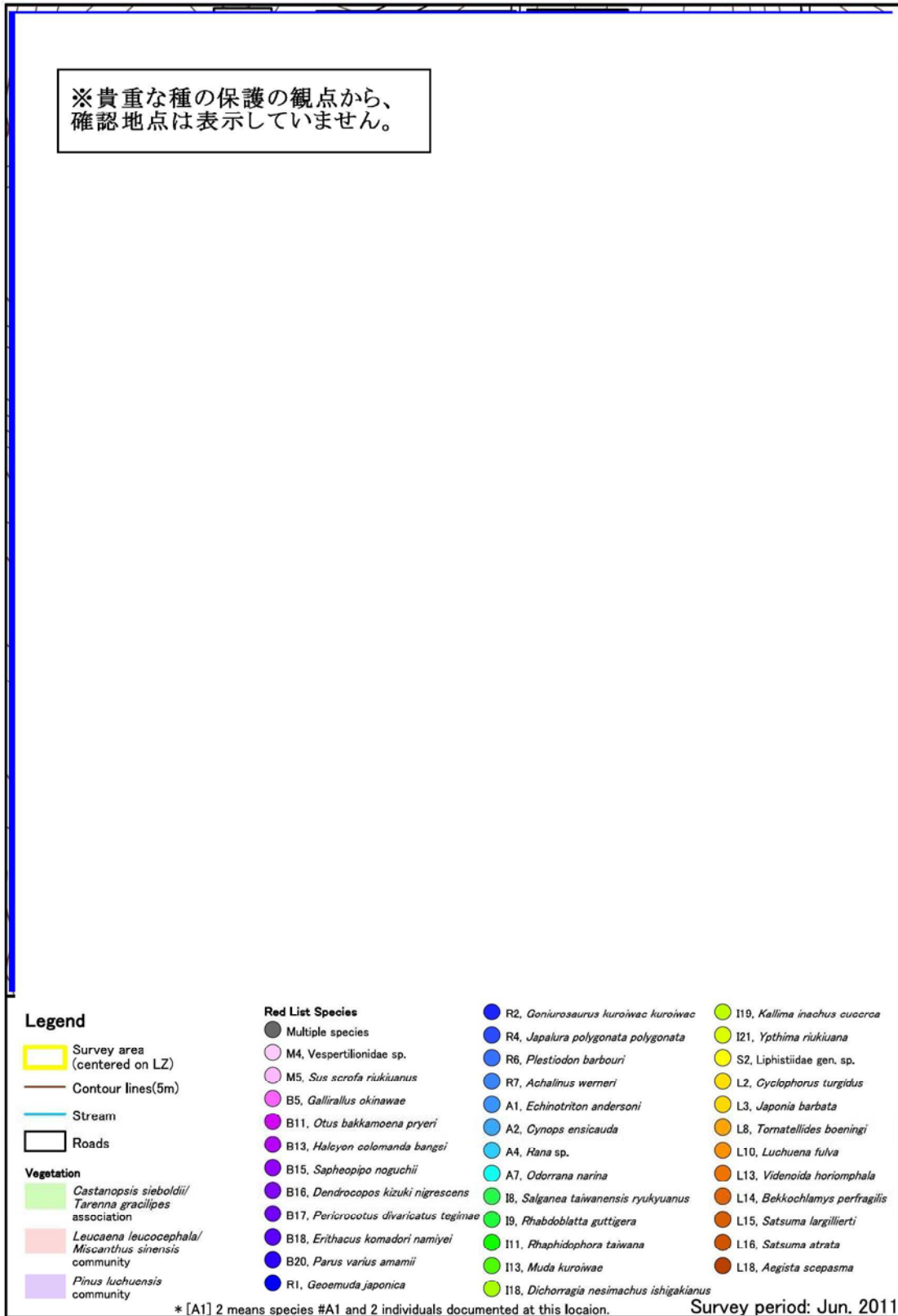


Figure 3-7(2) Locations of Red List Fauna Species Near LZ 1

NTA Red Listed Species

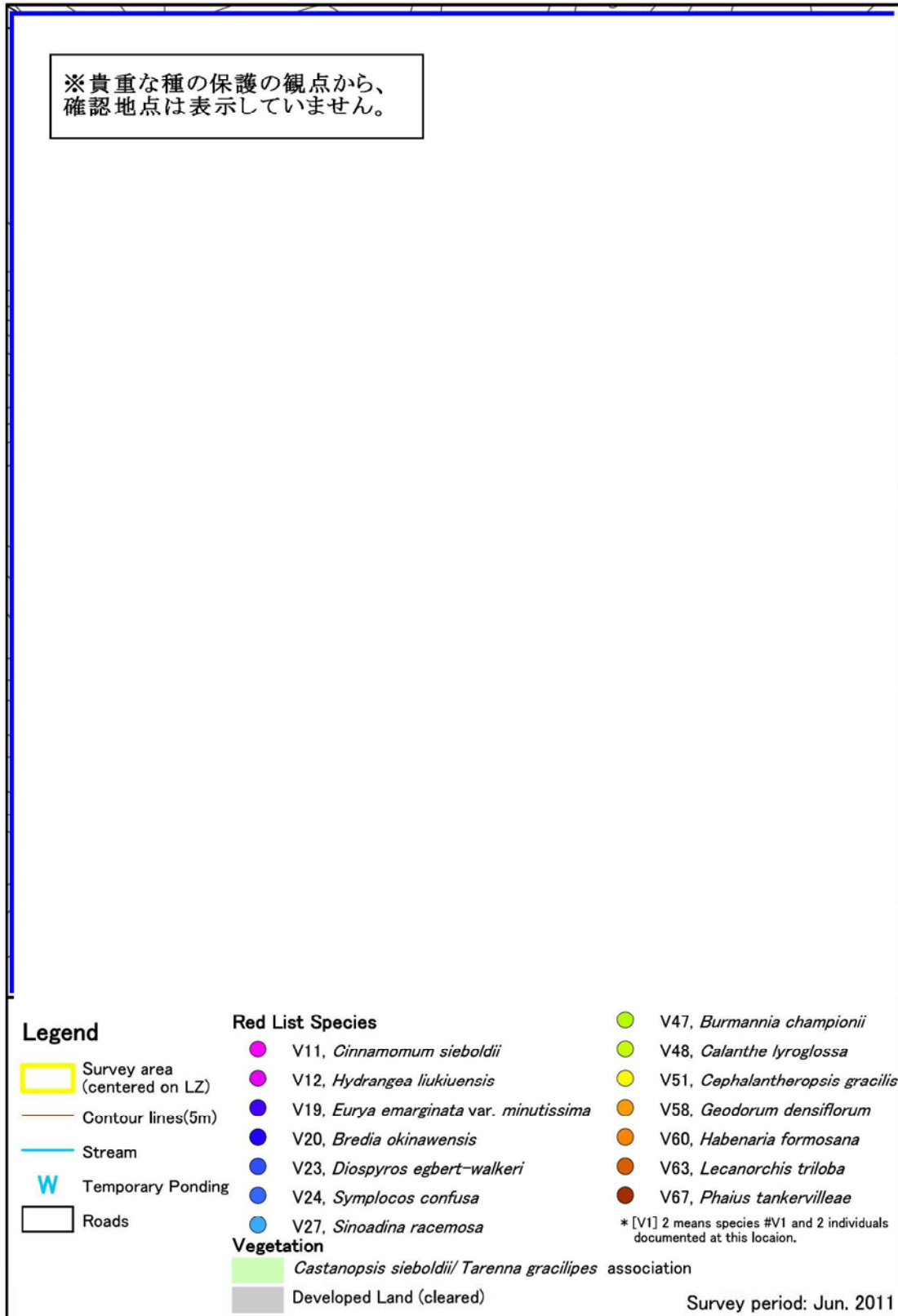


Figure 3-8(1) Locations of Red List Flora Species Near LZ 3

NTA Red Listed Species

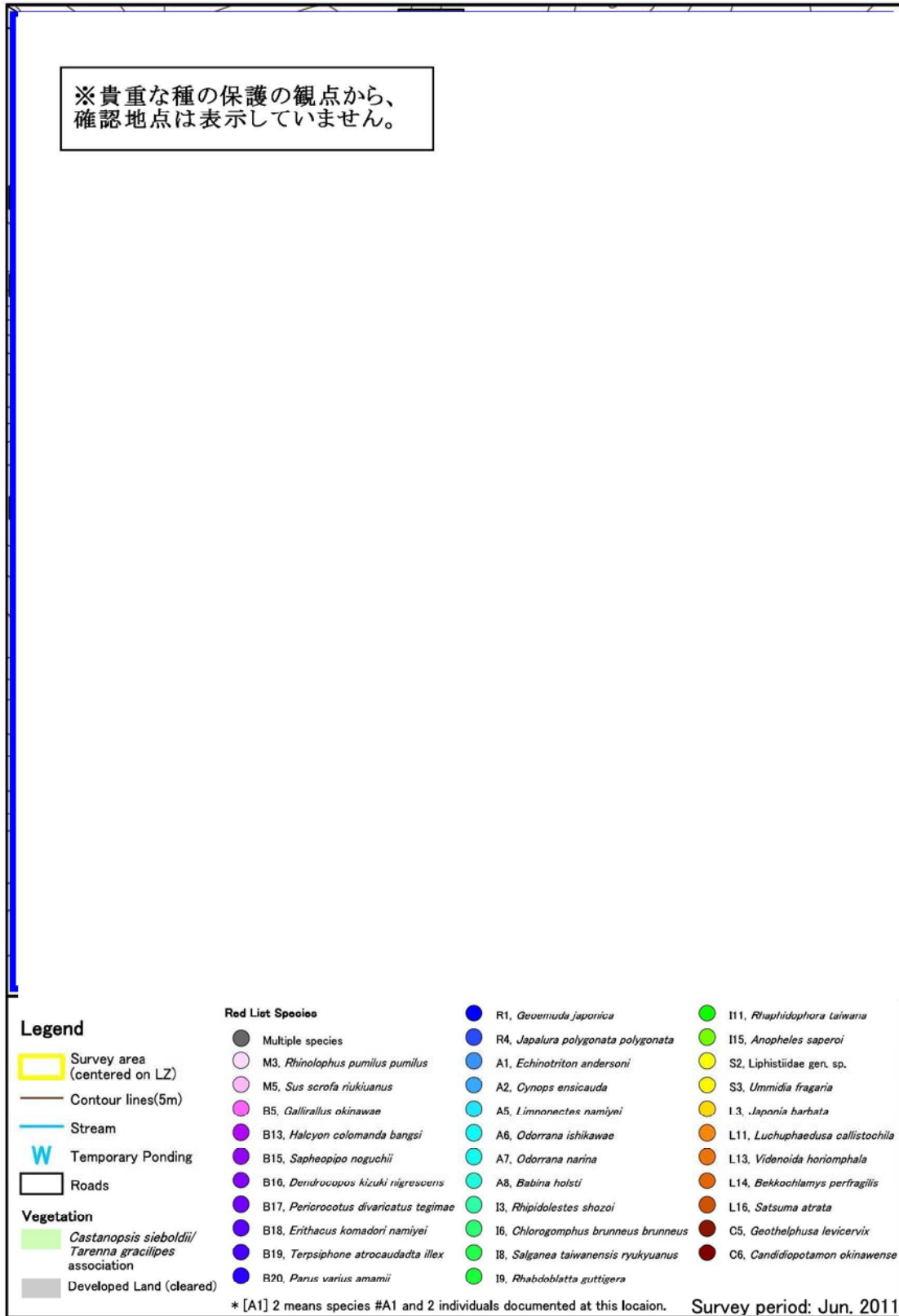


Figure 3-8(2) Locations of Red List Fauna Species Near LZ 3

NTA Red Listed Species

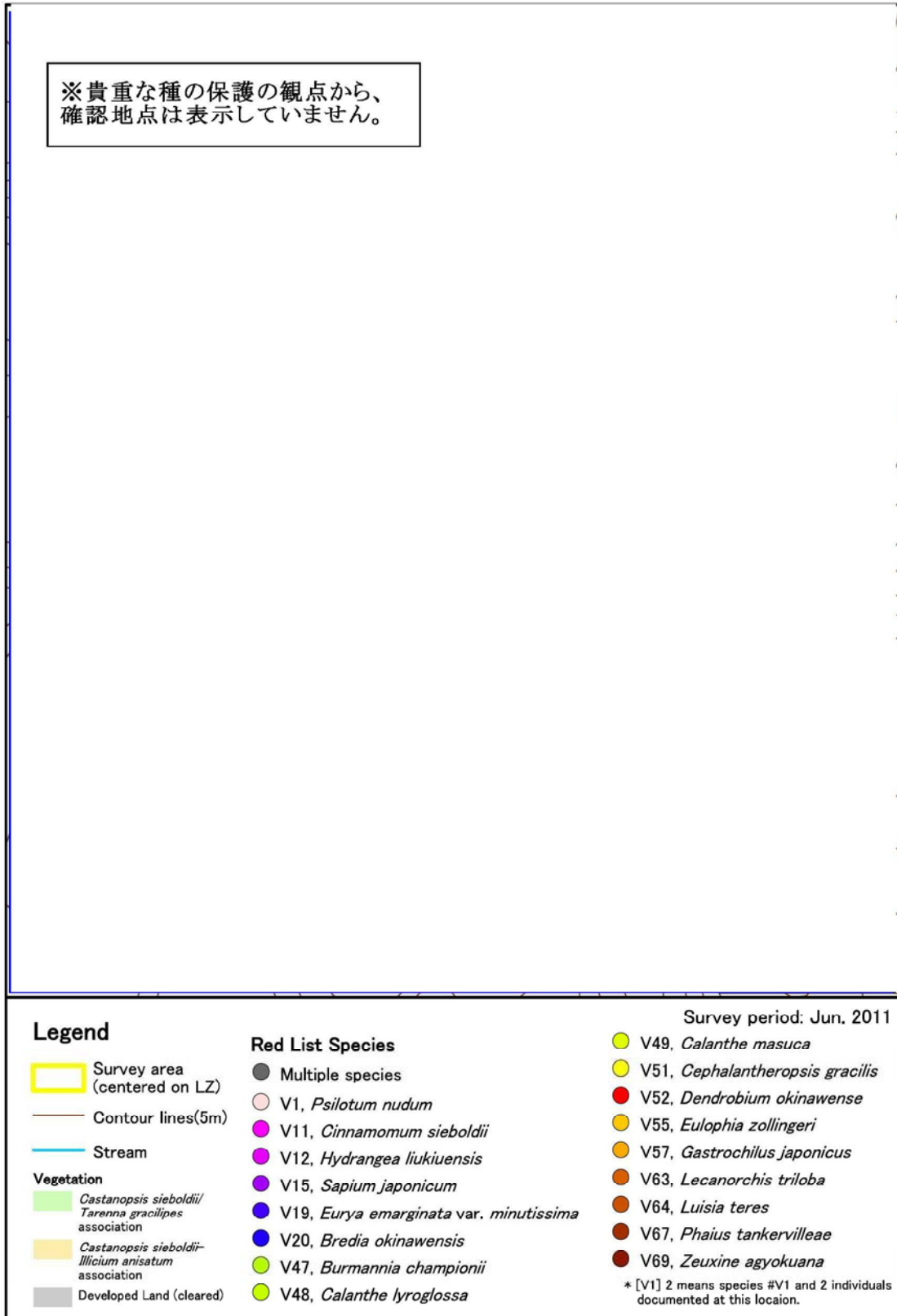


Figure 3-9(1) Locations of Red List Flora Species Near LZ Firebase Jones

NTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

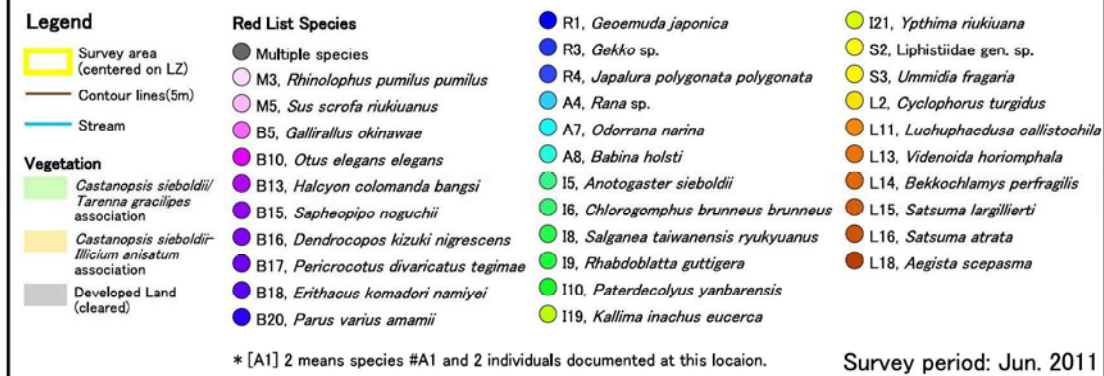


Figure 3-9(2) Locations of Red List Fauna Species Near LZ Firebase Jones

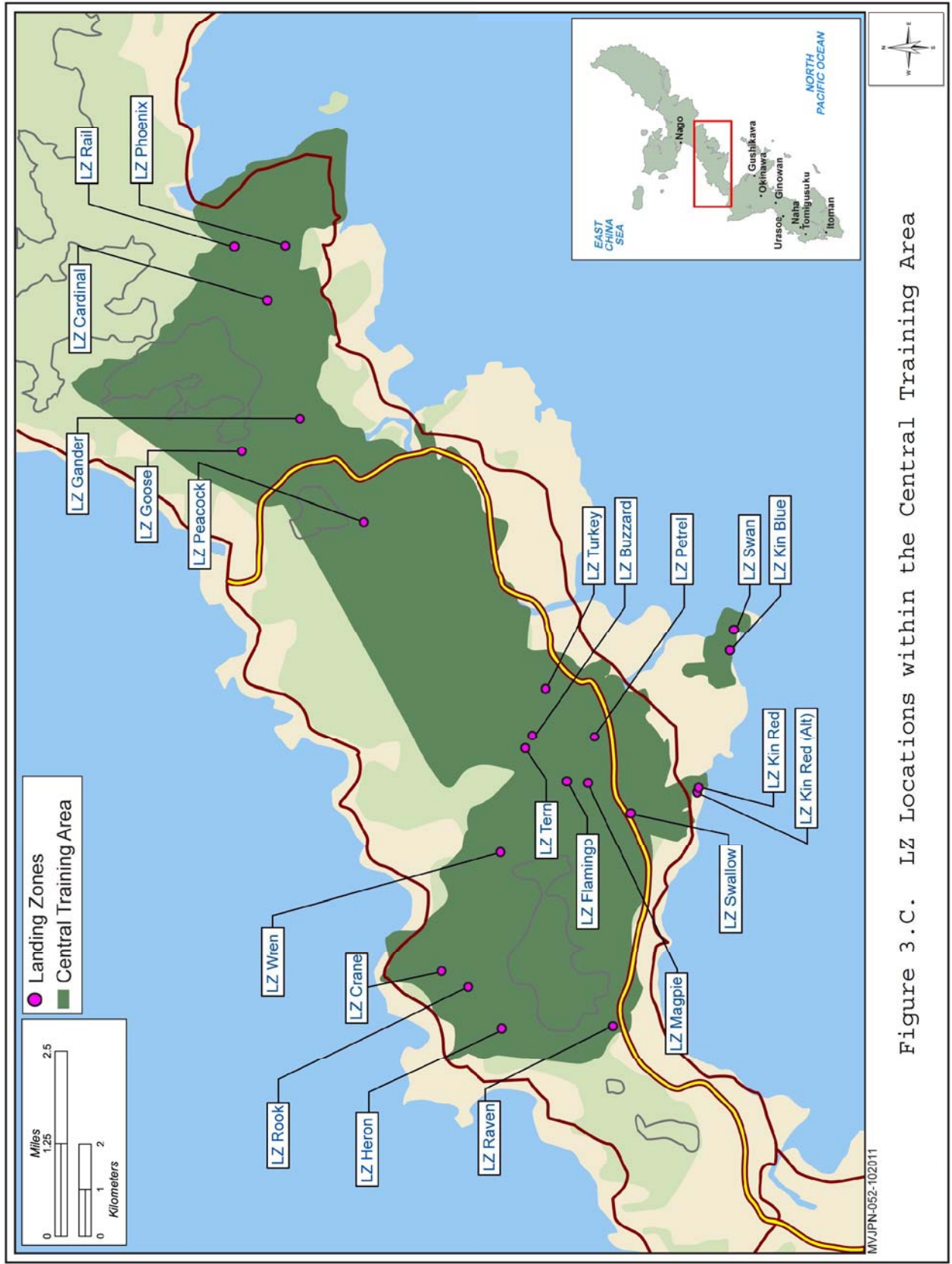


Figure 3.C. IZ Locations within the Central Training Area

CTA Red Listed Species

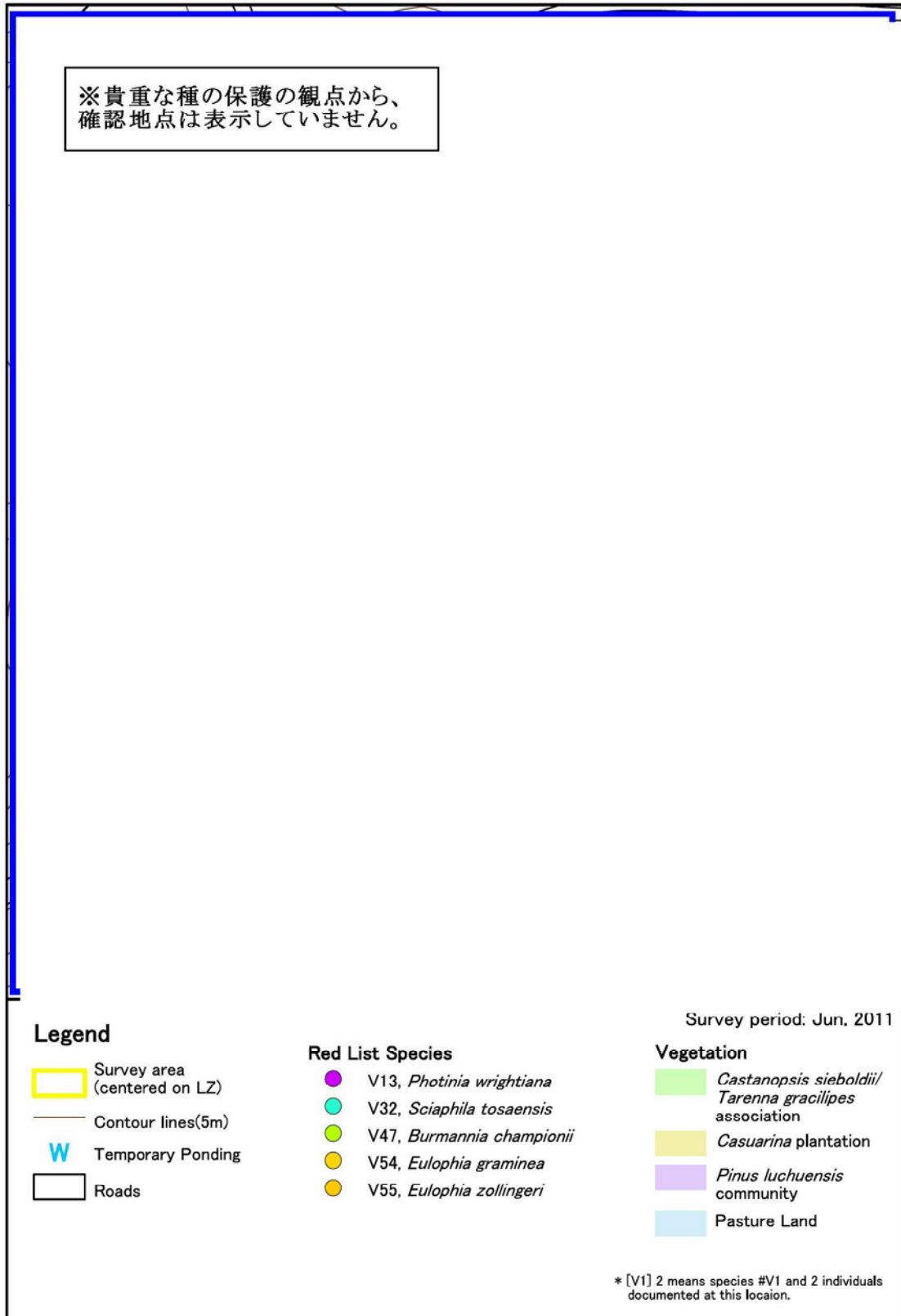


Figure 3-10(1) Locations of Red List Flora Species Near LZ Buzzard

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

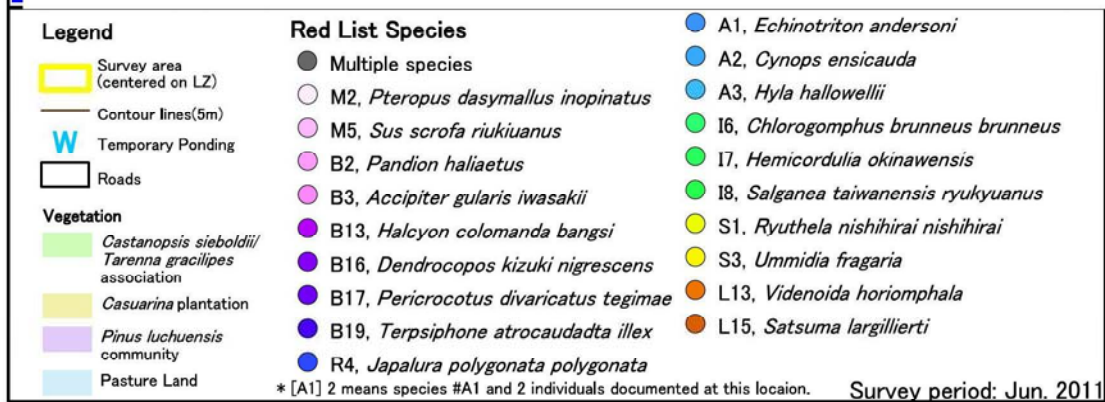


Figure 3-10(2) Locations of Red List Fauna Species Near LZ Buzzard

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。



Figure 3-11(1) Locations of Red List Flora Species Near LZ Cardinal

CTA Red Listed Species

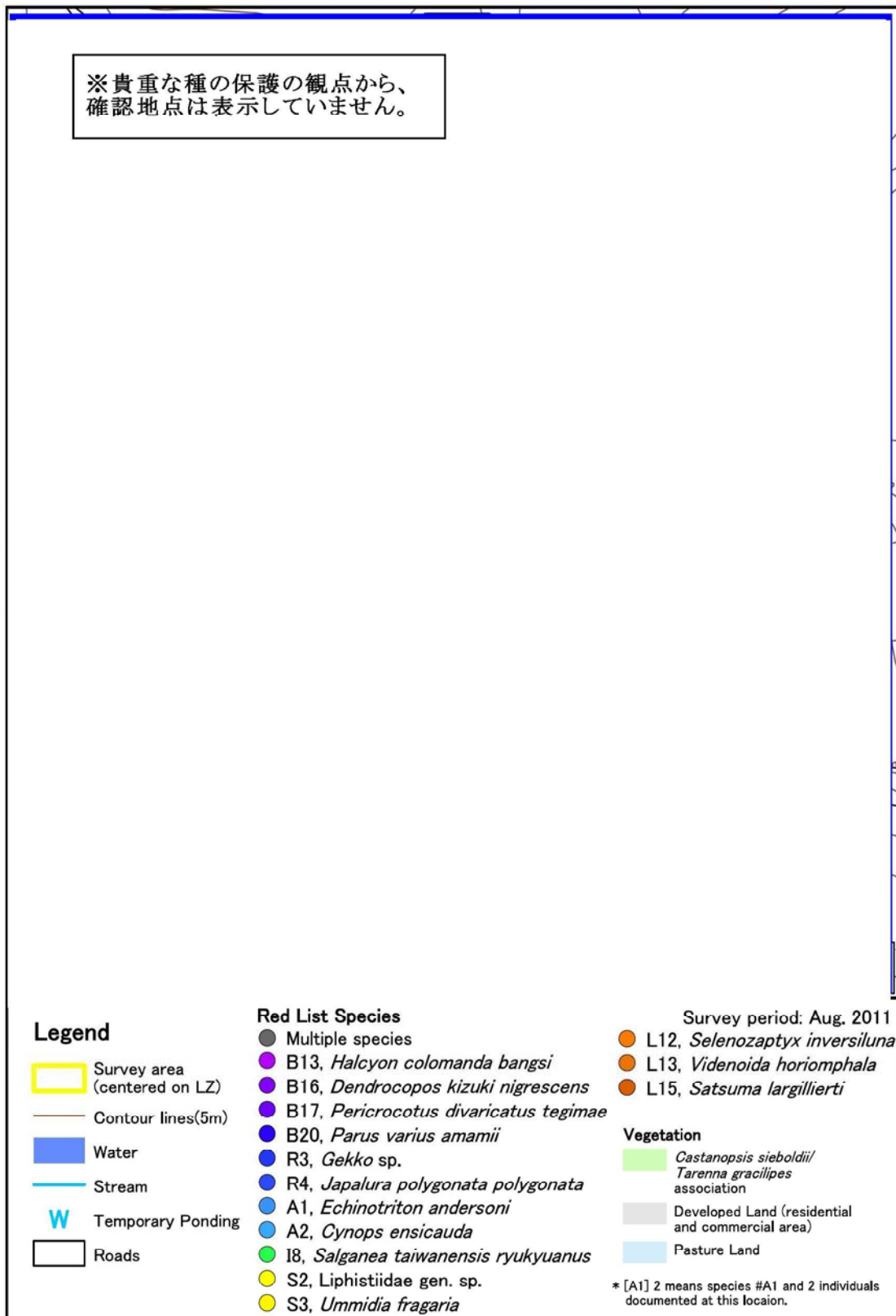


Figure 3-11(2) Locations of Red List Fauna Species Near LZ Cardinal

CTA Red Listed Species

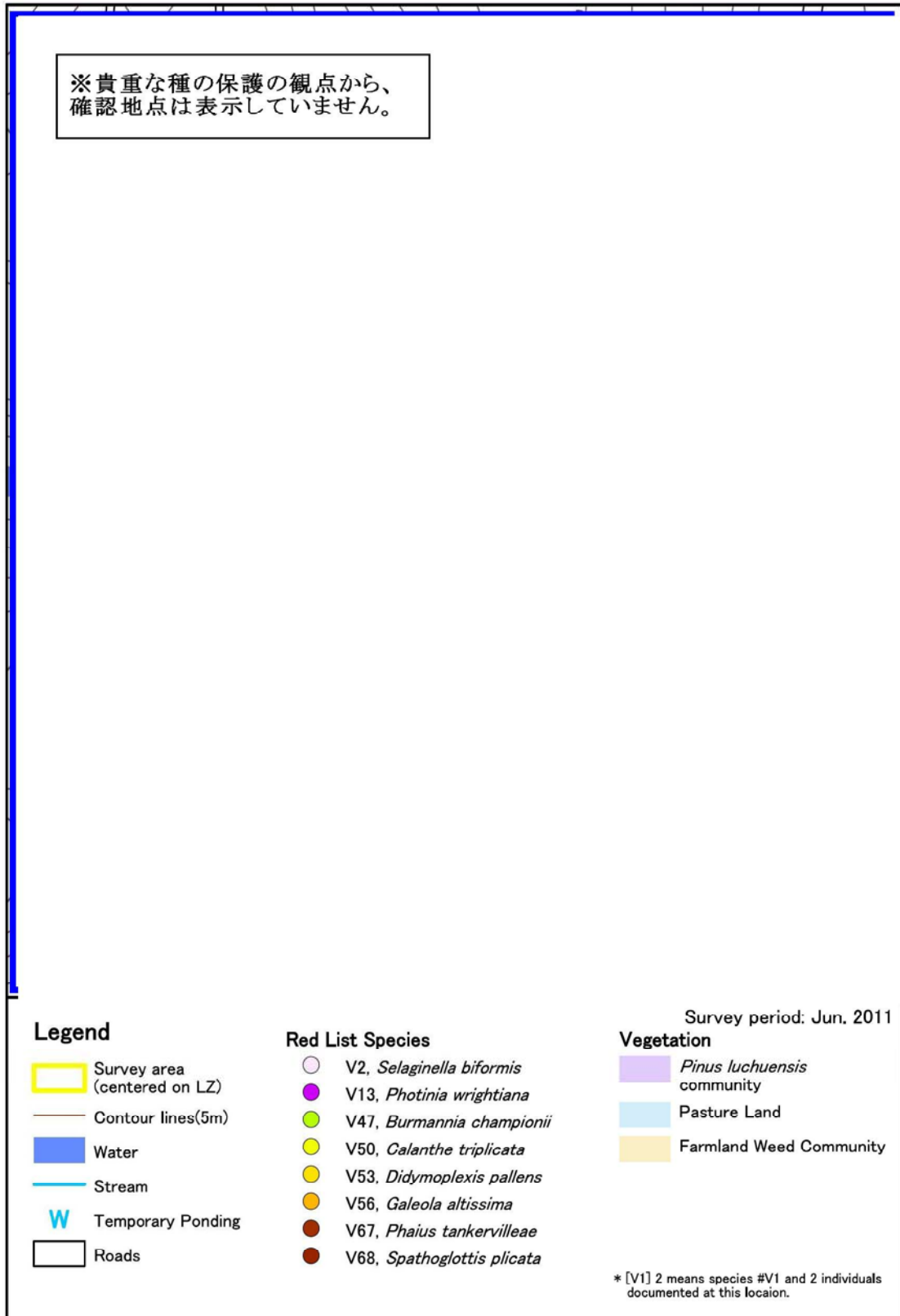


Figure 3-12(1) Locations of Red List Flora Species Near LZ Crane

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

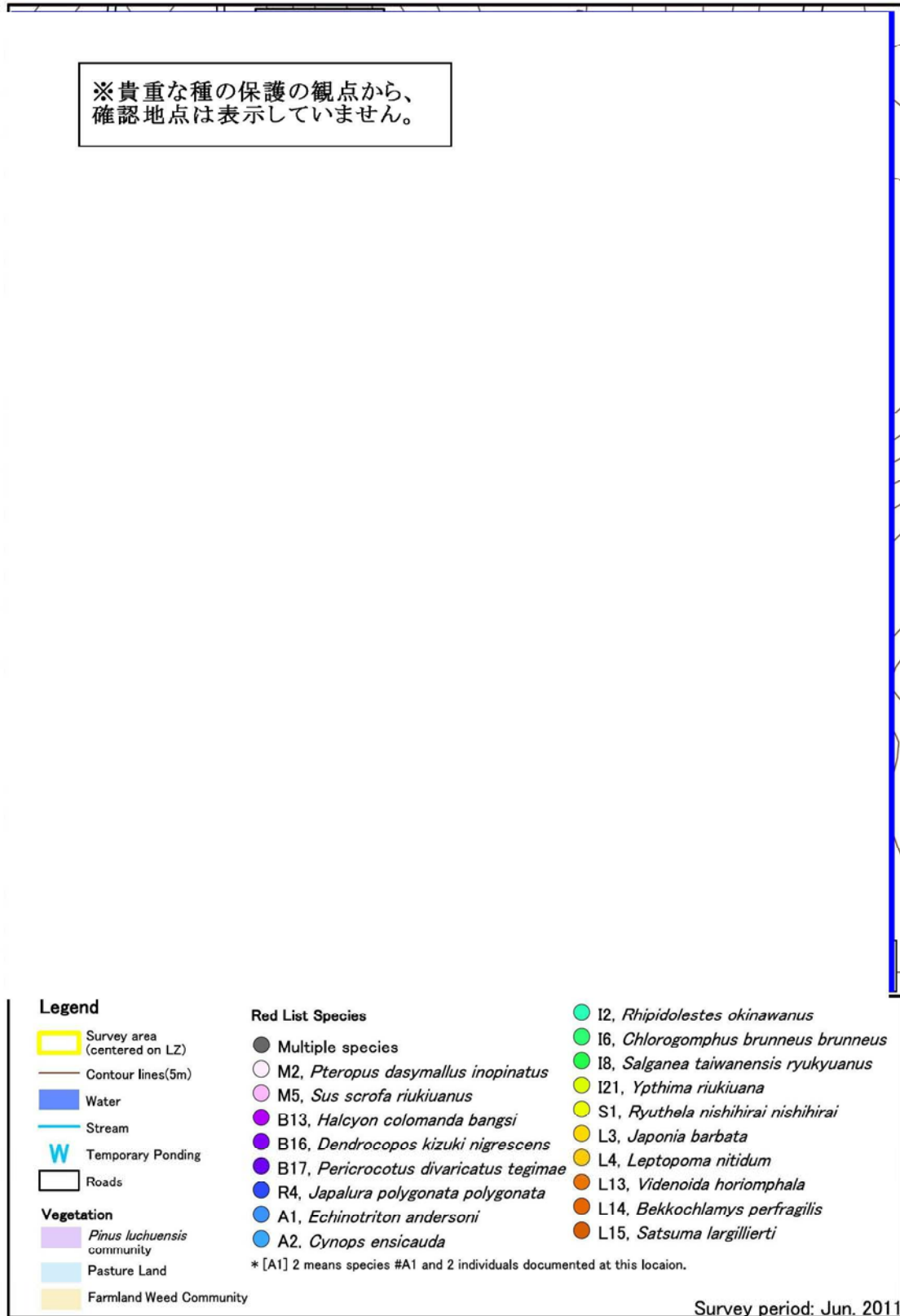


Figure 3-12(2) Locations of Red List Fauna Species Near LZ Crane

CTA Red Listed Species

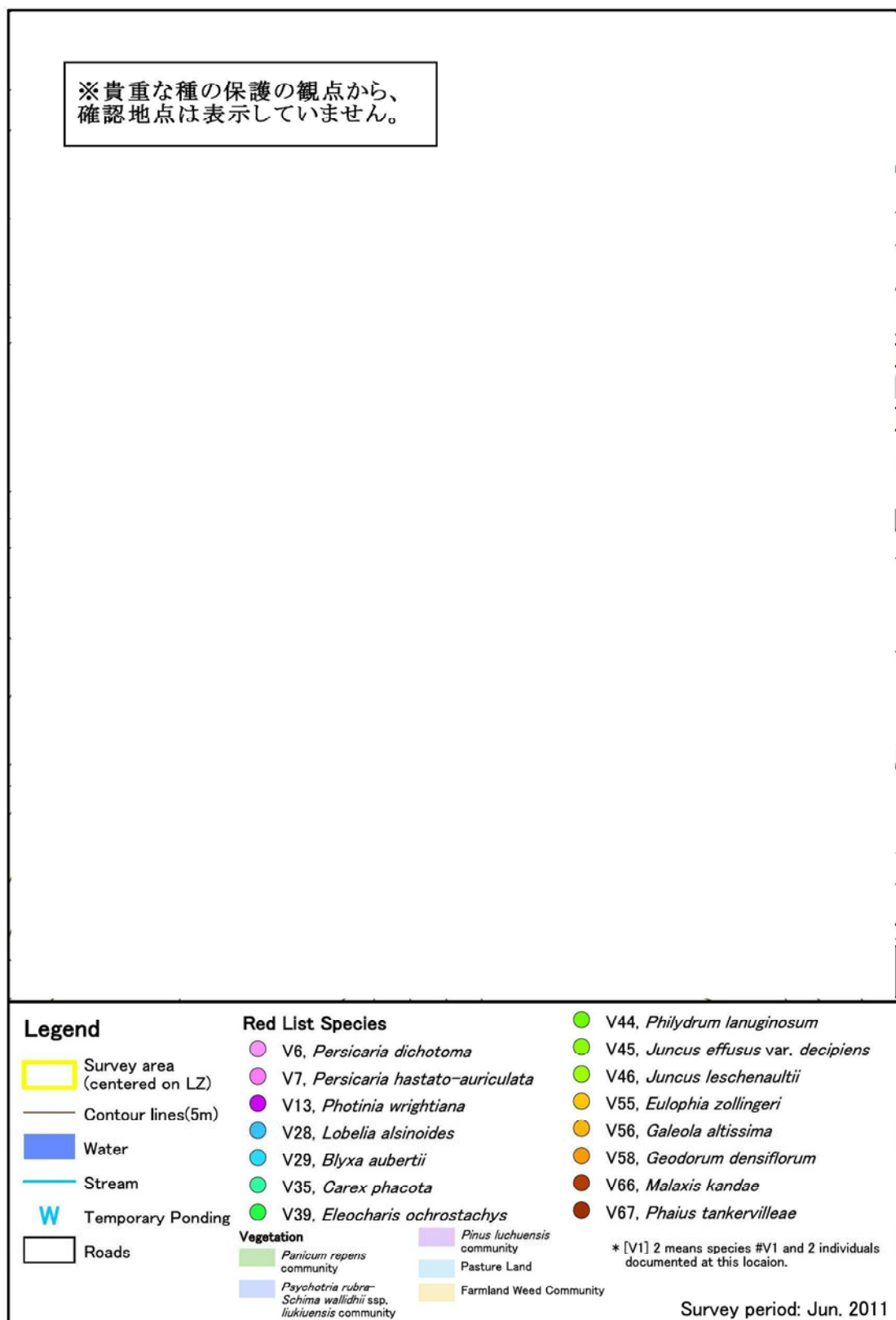


Figure 3-13(1) Locations of Red List Flora Species Near LZ Flamingo

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

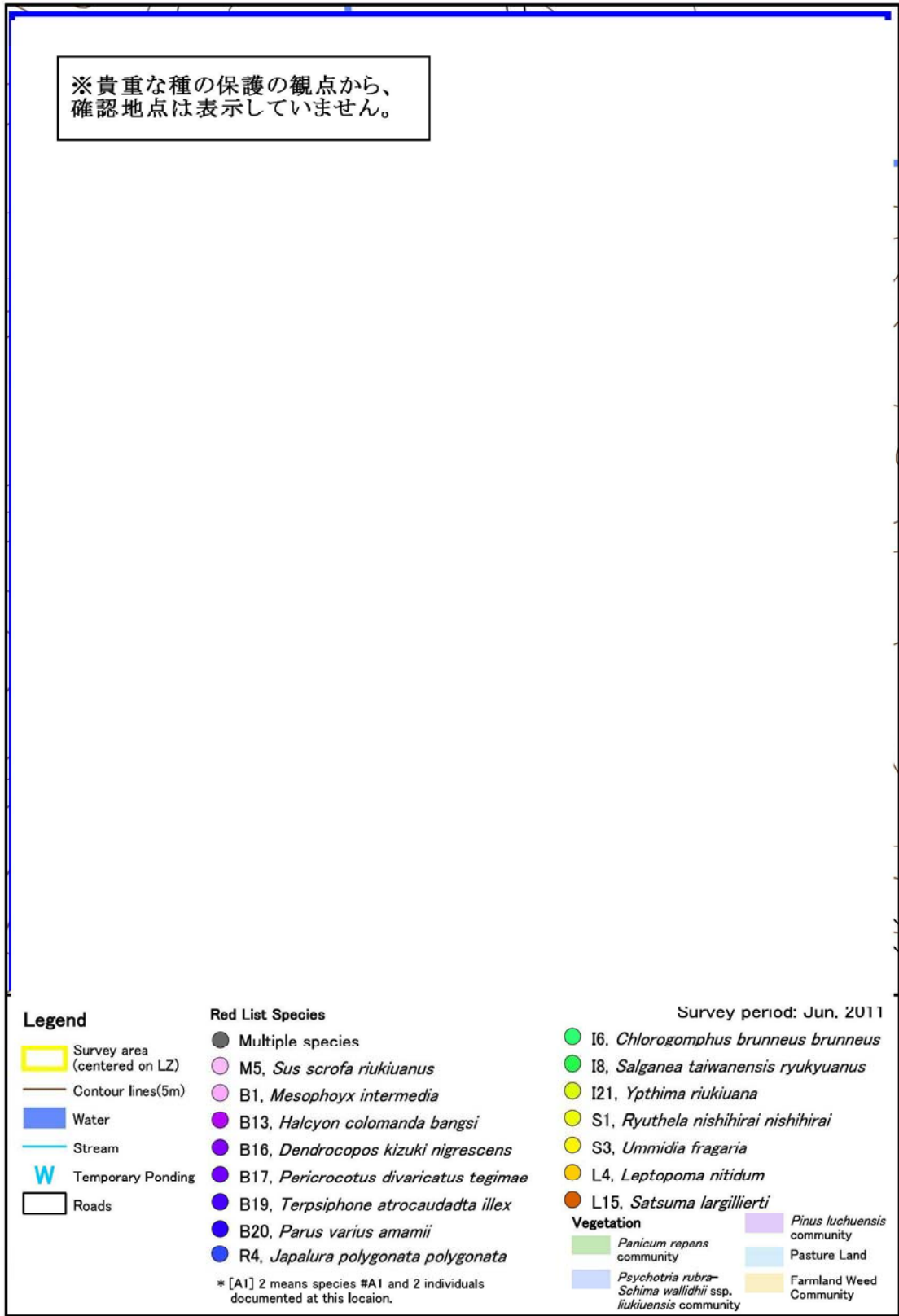


Figure 3-13(2) Locations of Red List Fauna Species Near LZ Flamingo

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

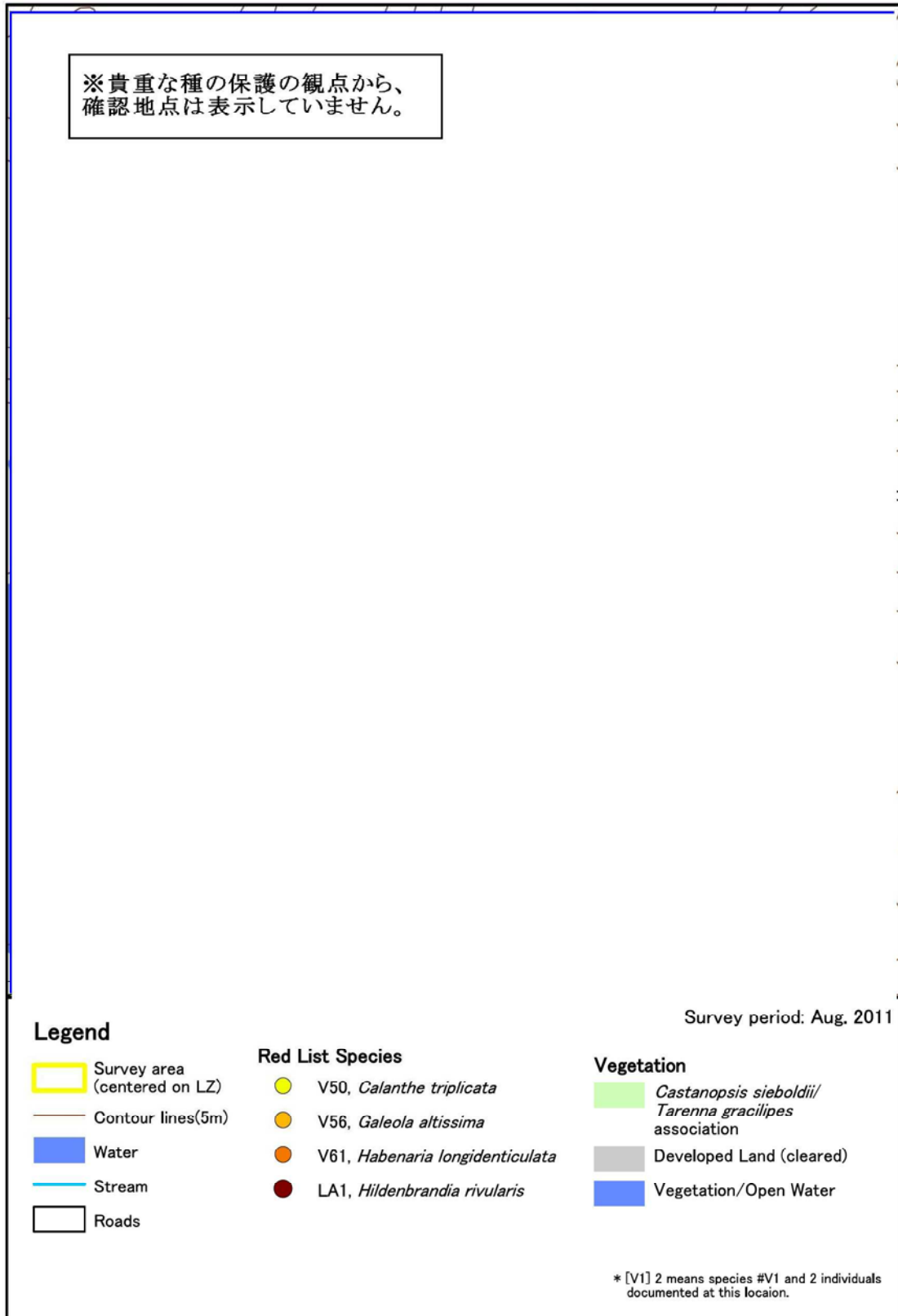


Figure 3-14(1) Locations of Red List Flora Species Near LZ Gander

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

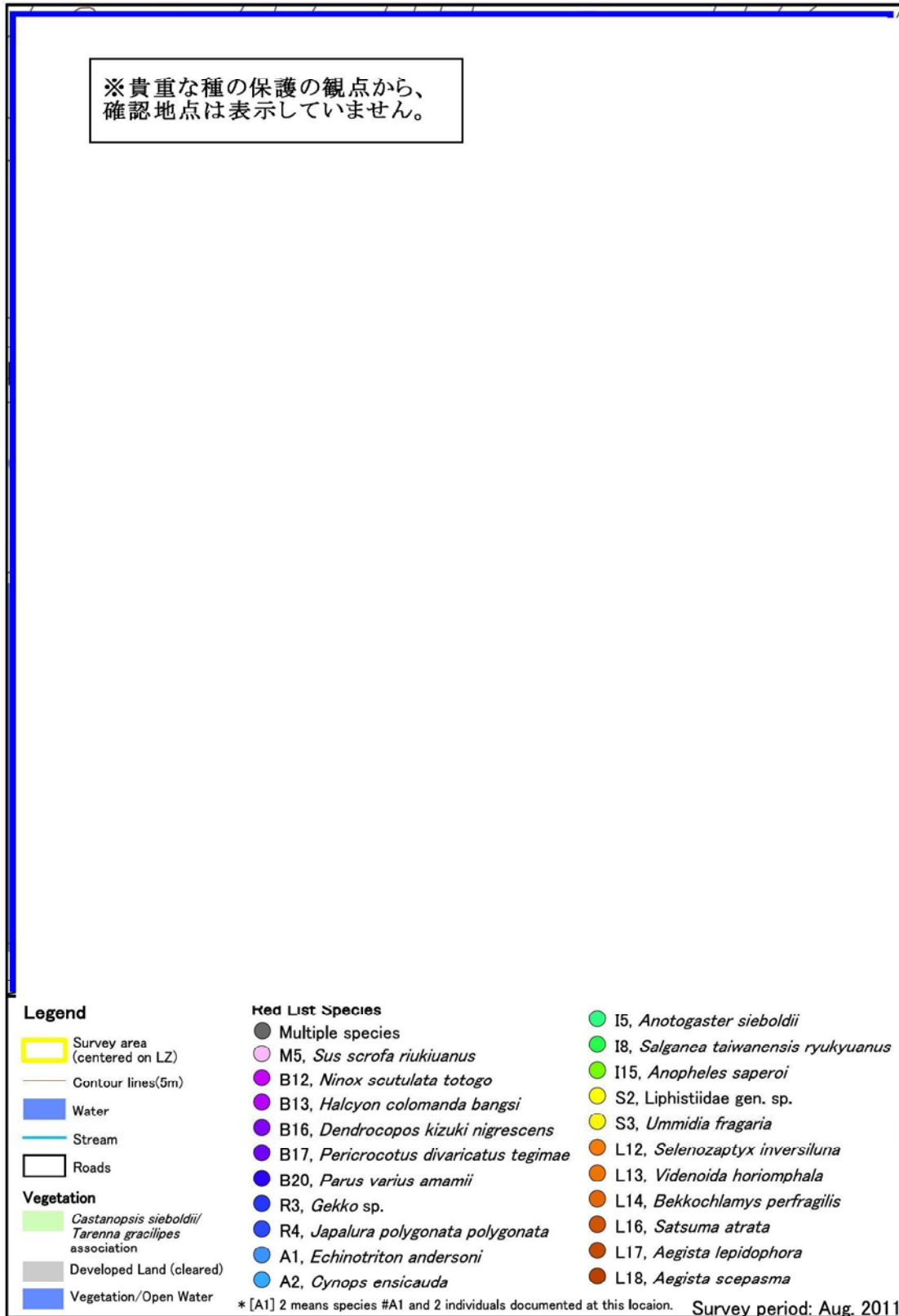


Figure 3-14(2) Locations of Red List Fauna Species Near LZ Gander

CTA Red Listed Species

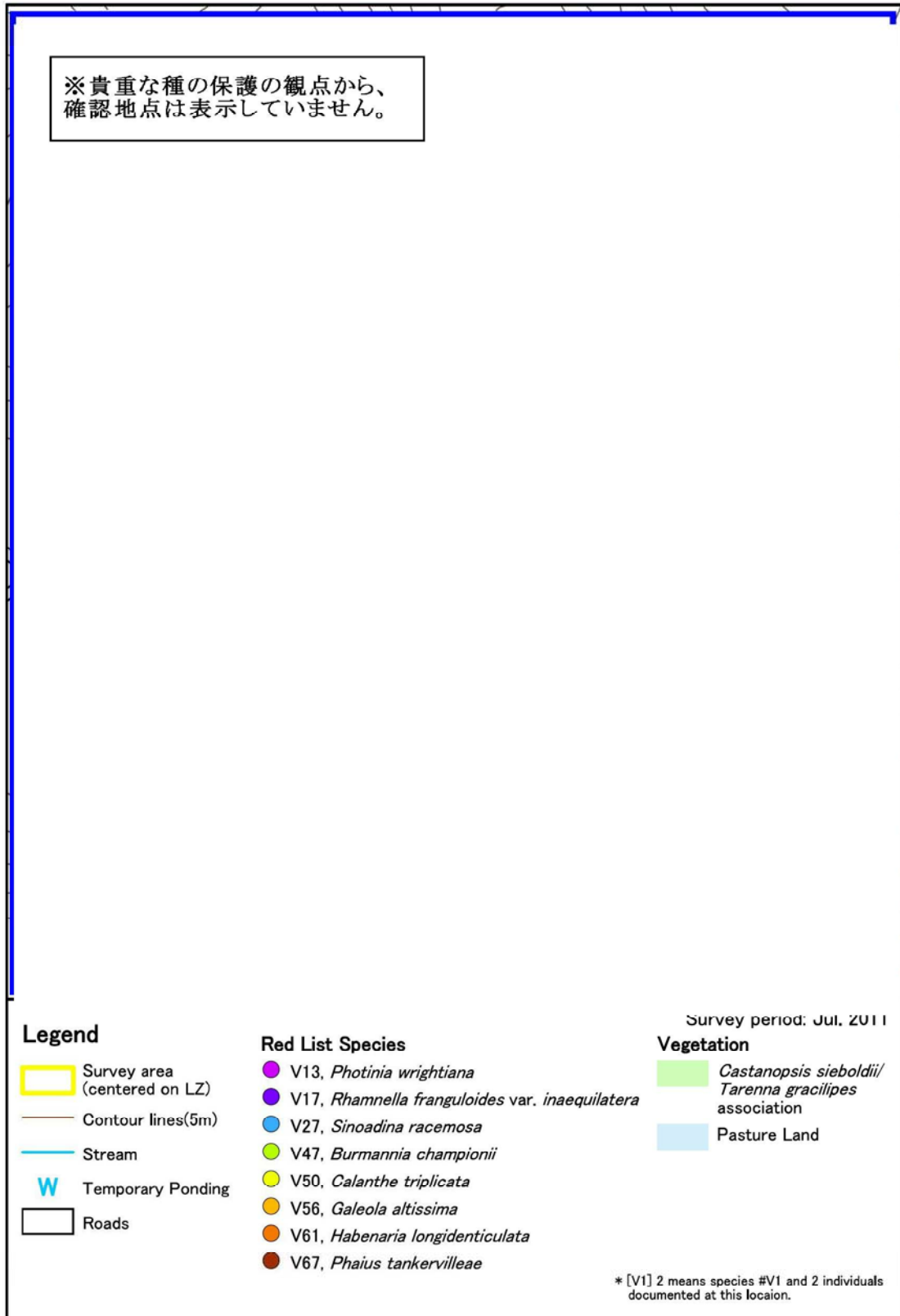


Figure 3-15(1) Locations of Red List Flora Species Near LZ Goose

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

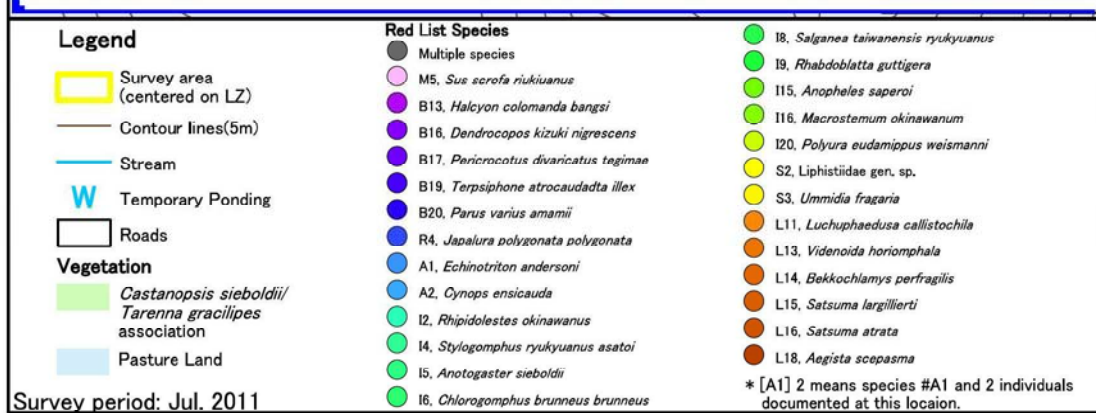


Figure 3-15(2) Locations of Red List Fauna Species Near LZ Goose

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

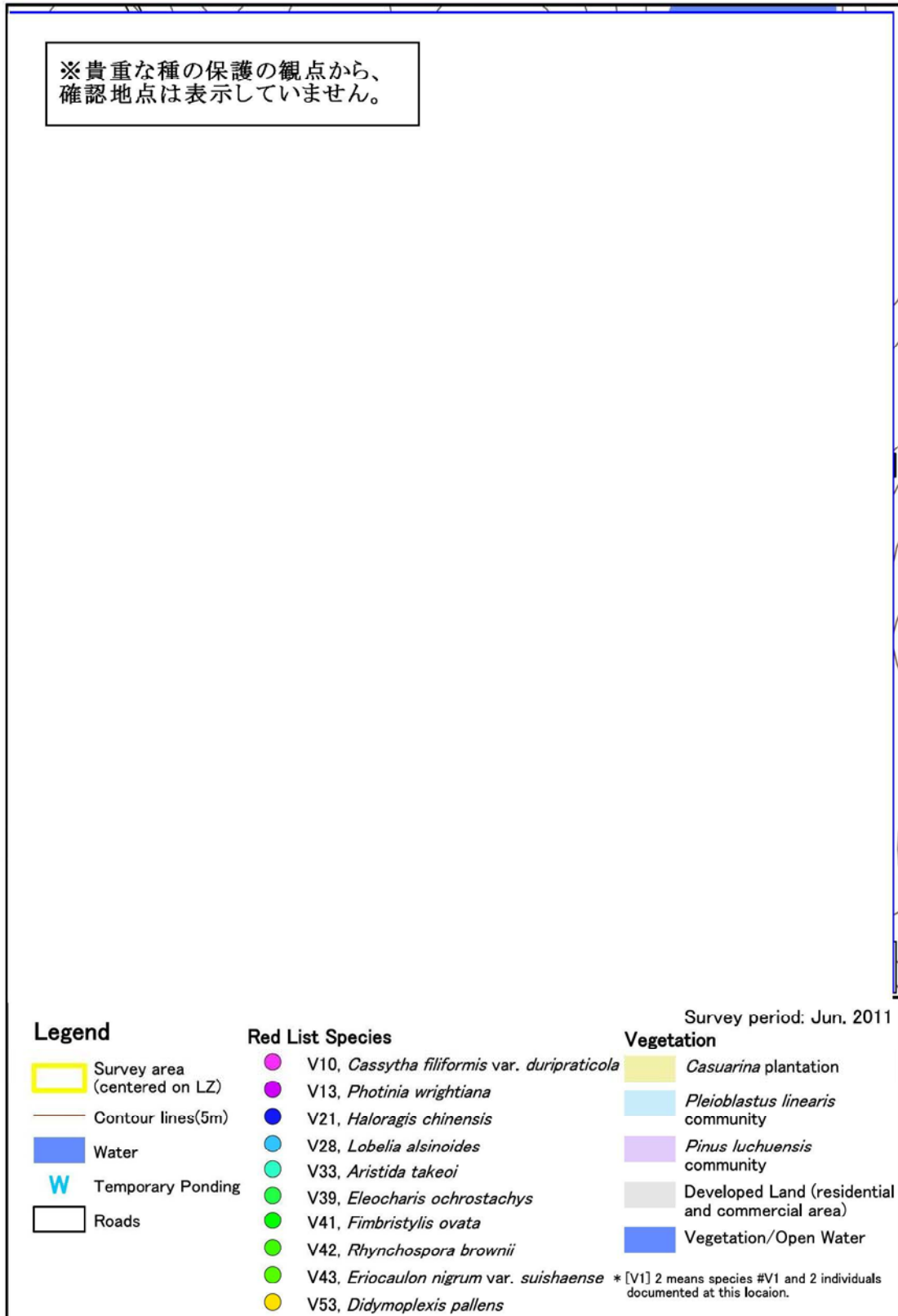


Figure 3-16(1) Locations of Red List Flora Species Near LZ Heron

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

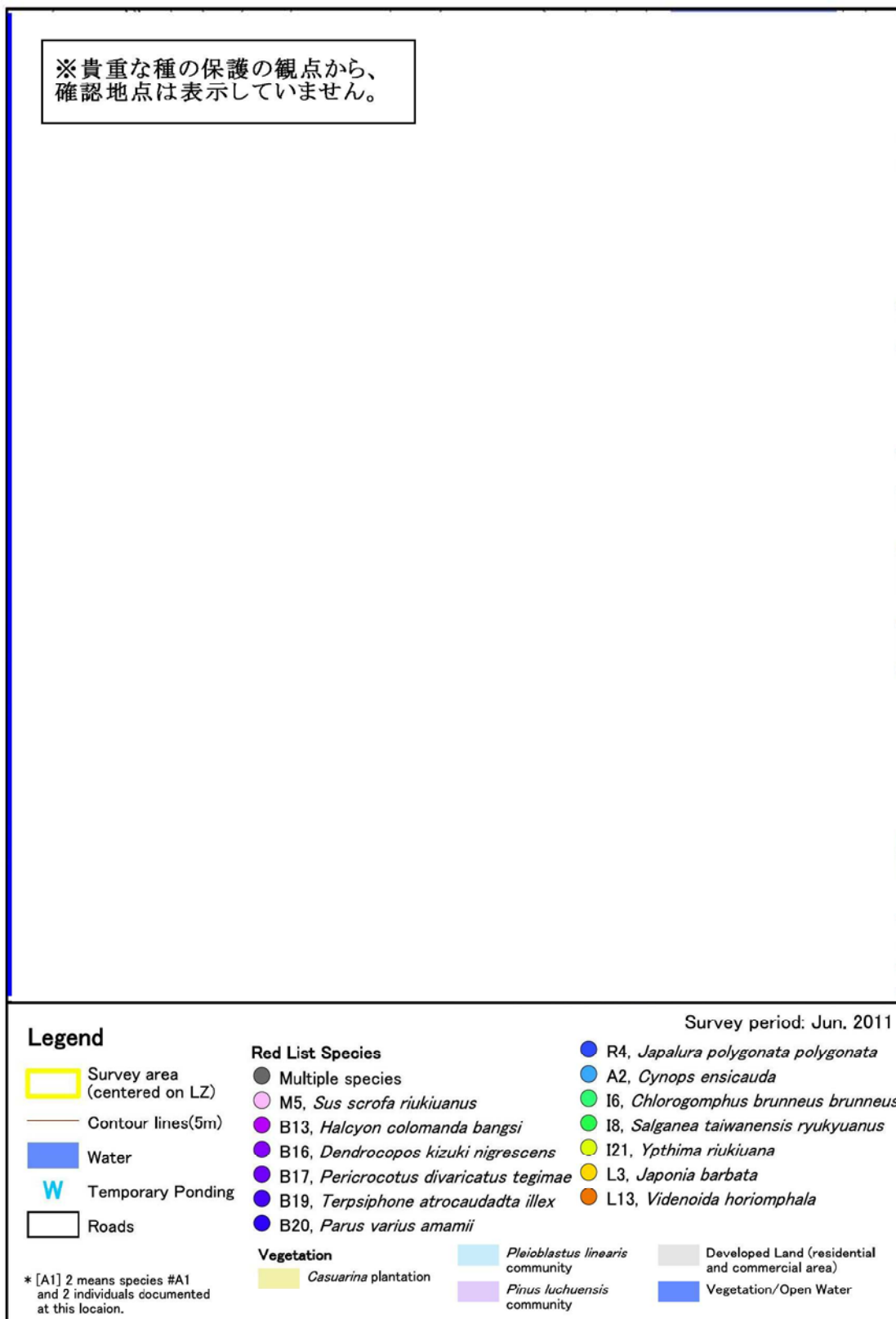


Figure 3-16(2) Locations of Red List Fauna Species Near LZ Heron

CTA Red Listed Species

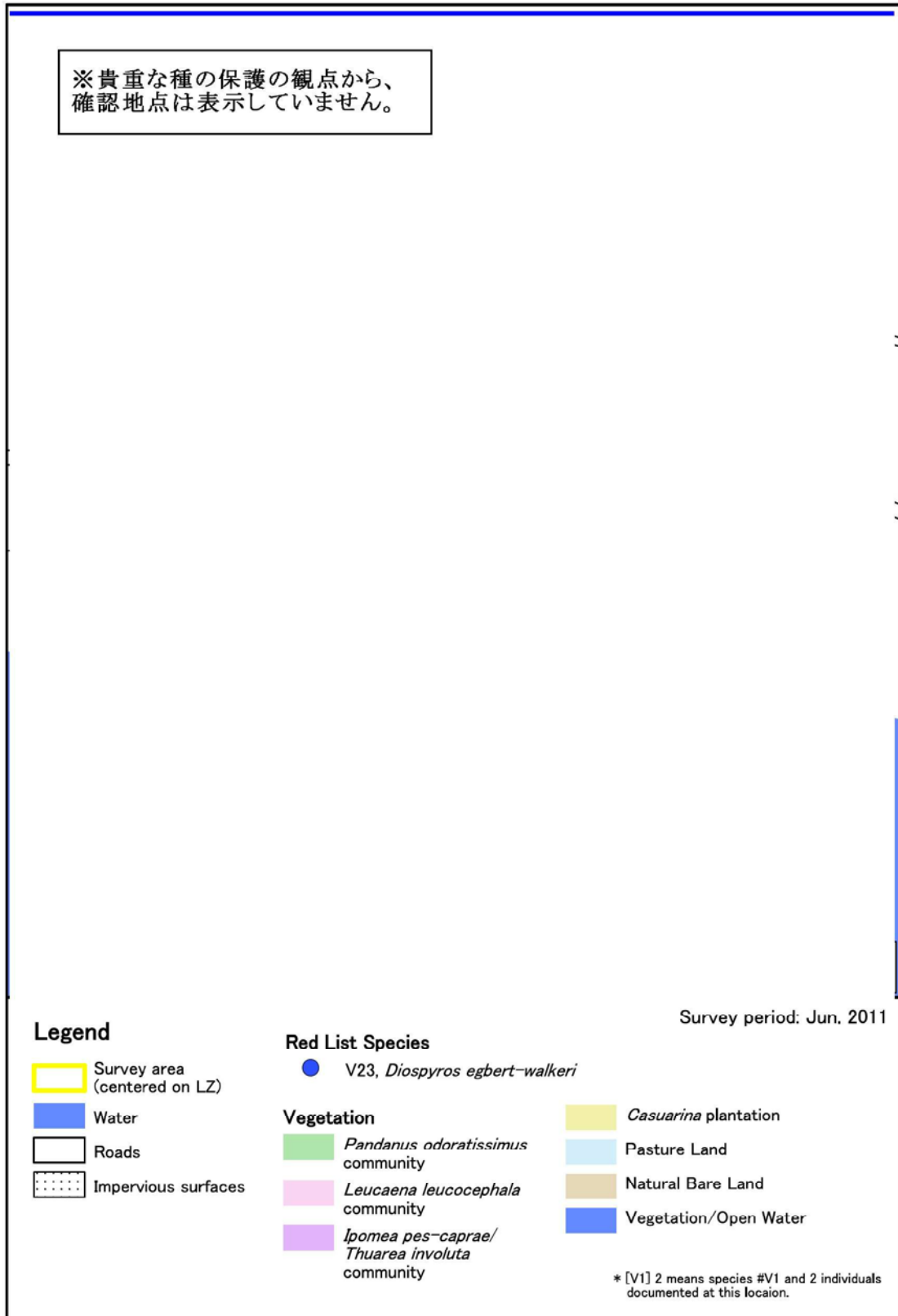


Figure 3-17(1) Locations of Red List Flora Species Near LZ Kin Blue

CTA Red Listed Species

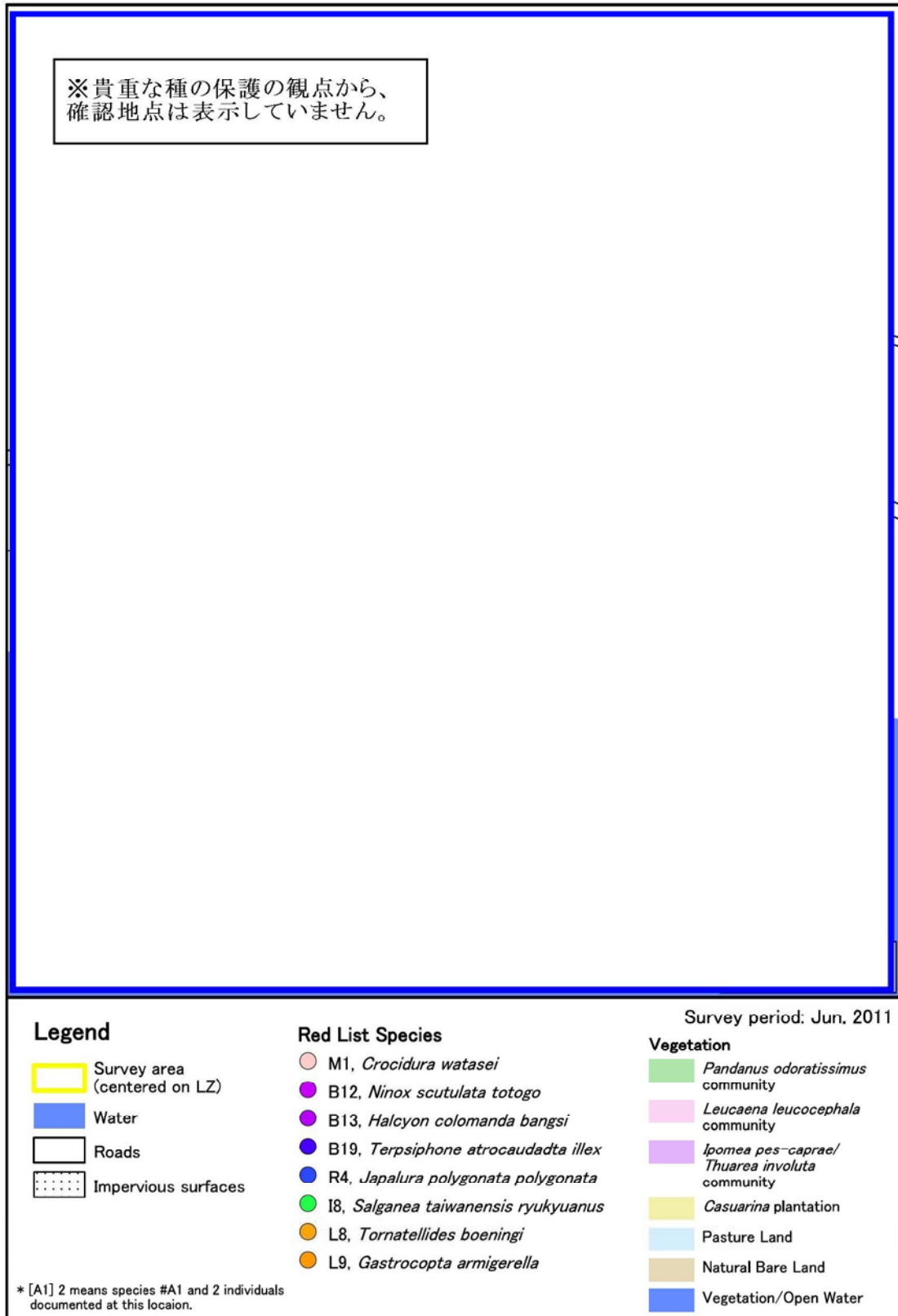


Figure 3-17(2) Locations of Red List Fauna Species Near LZ Kin Blue

CTA Red Listed Species

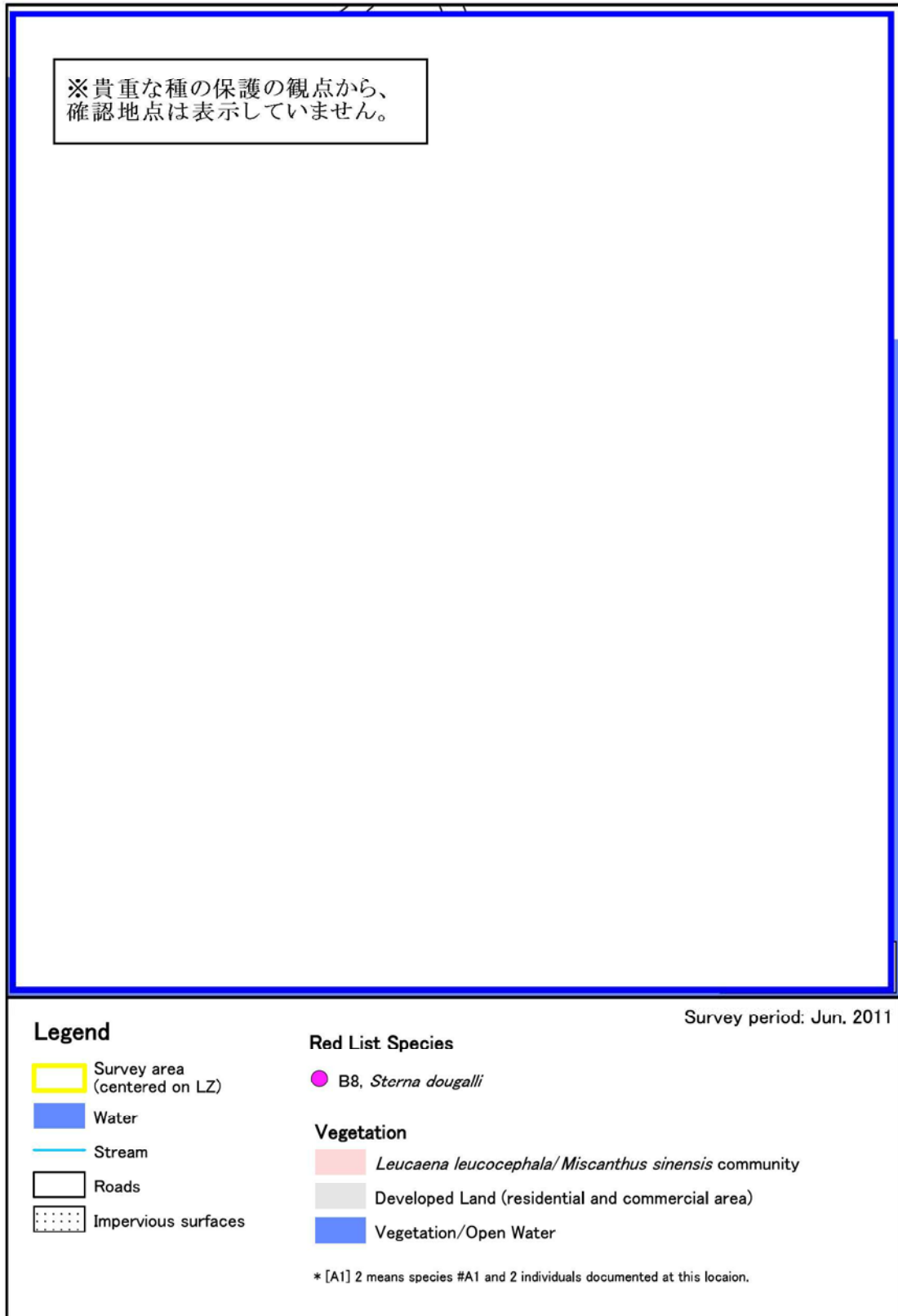


Figure 3-18 Locations of Red List Fauna Species Near LZ Kin Red

CTA Red Listed Species

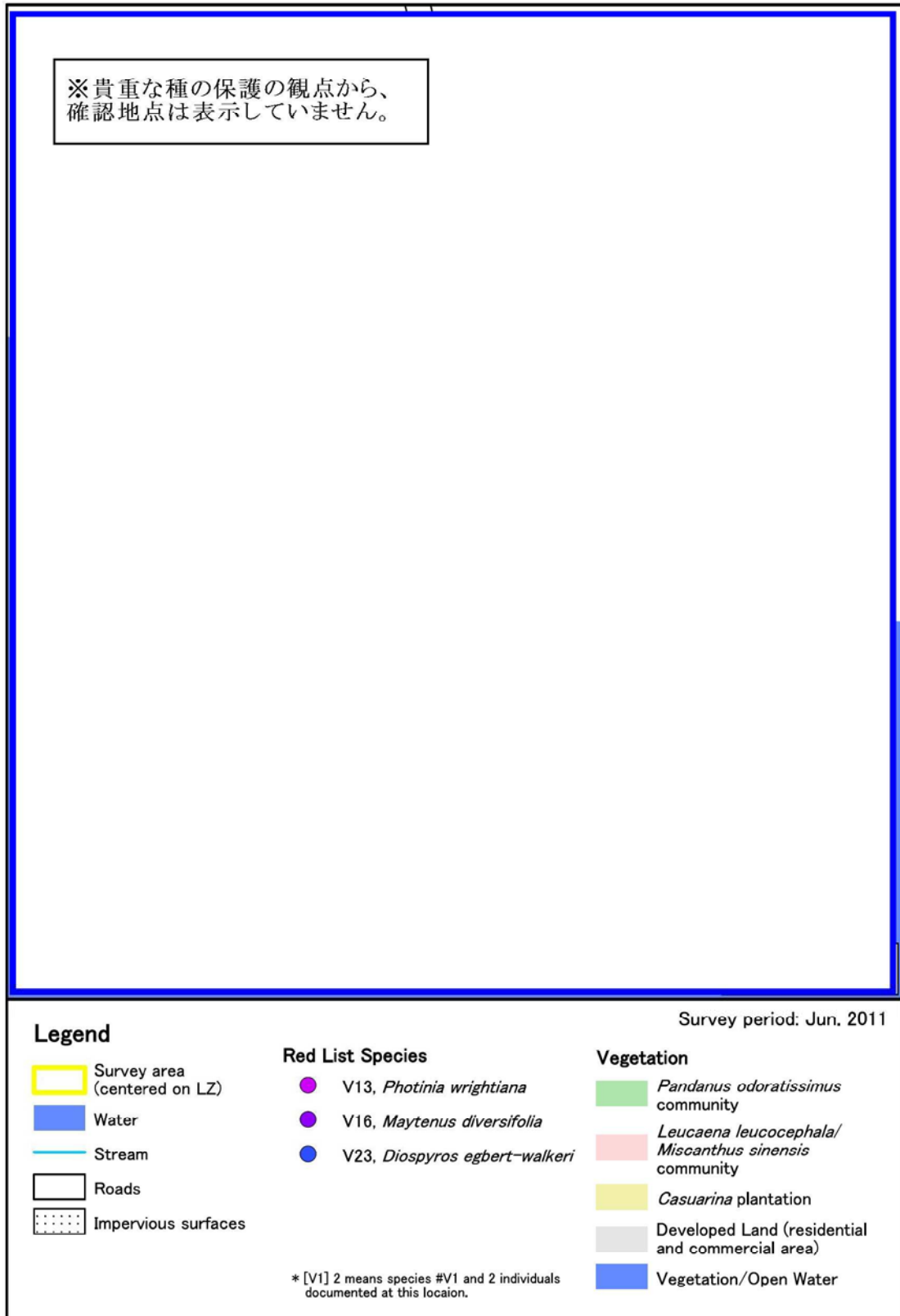


Figure 3-19(1) Locations of Red List Flora Species Near LZ Kin Red (Alt)

CTA Red Listed Species

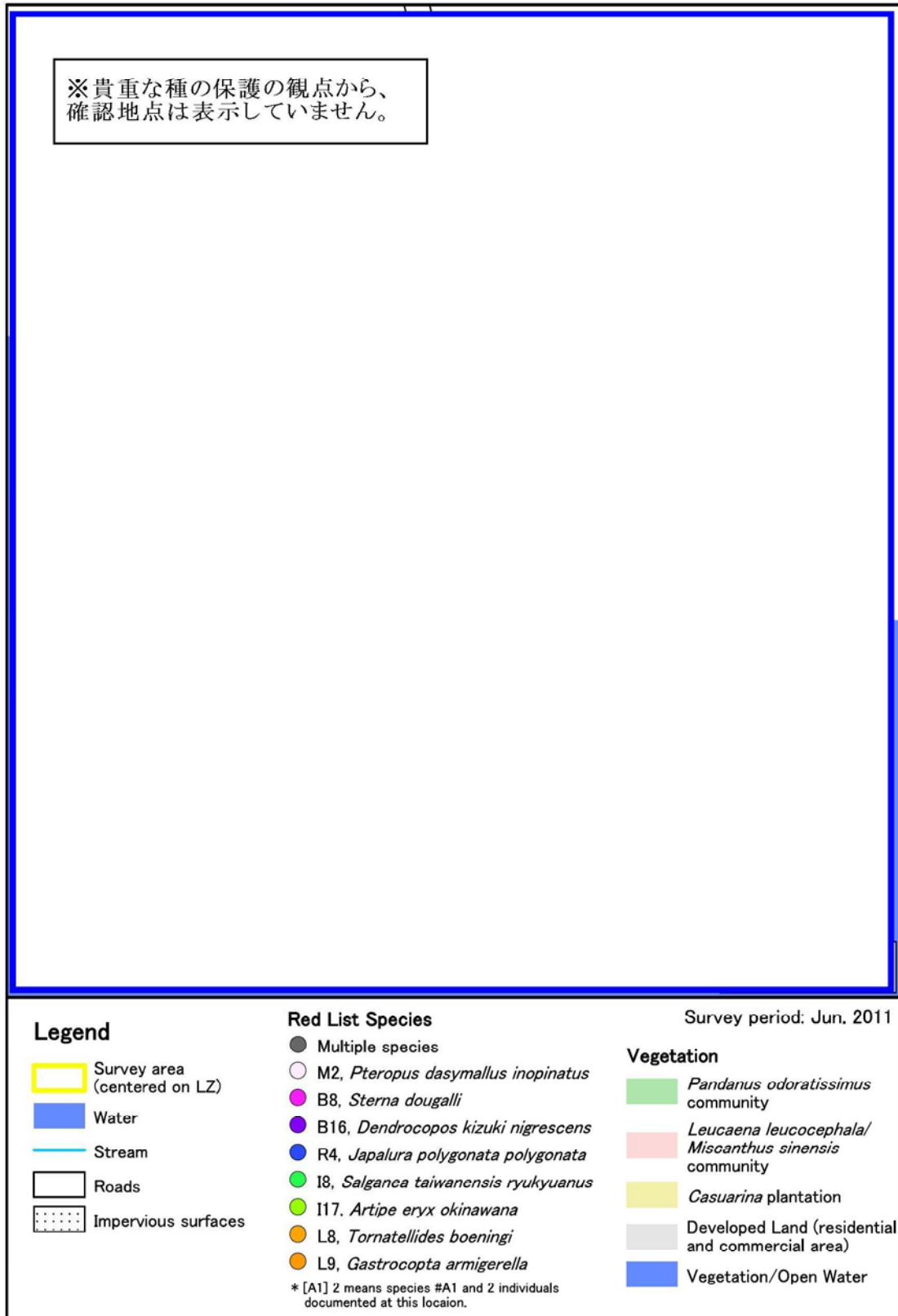


Figure 3-19(2) Locations of Red List Fauna Species Near LZ Kin Red (Alt)

CTA Red Listed Species

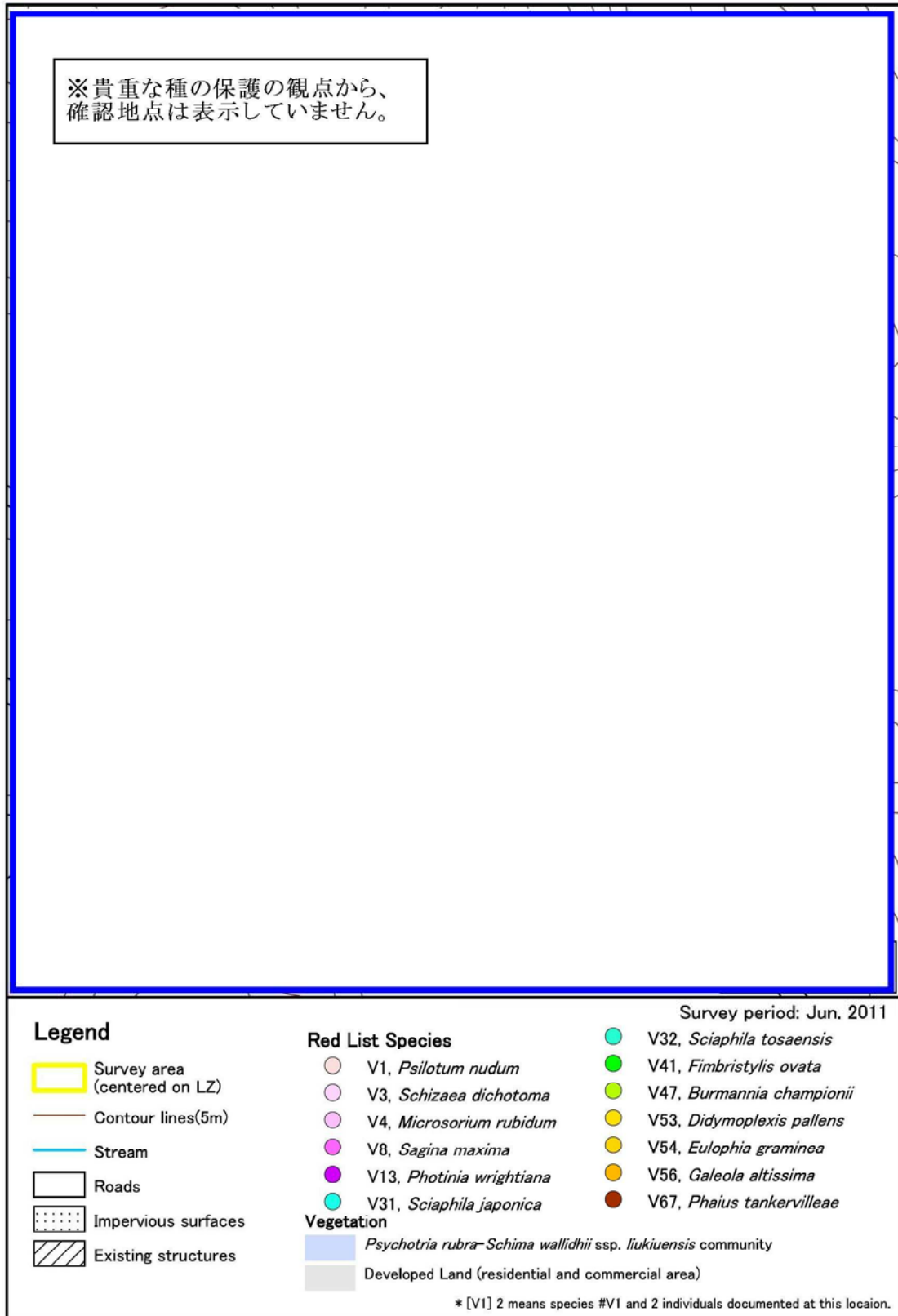


Figure 3-20(1) Locations of Red List Flora Species Near LZ Magpie

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

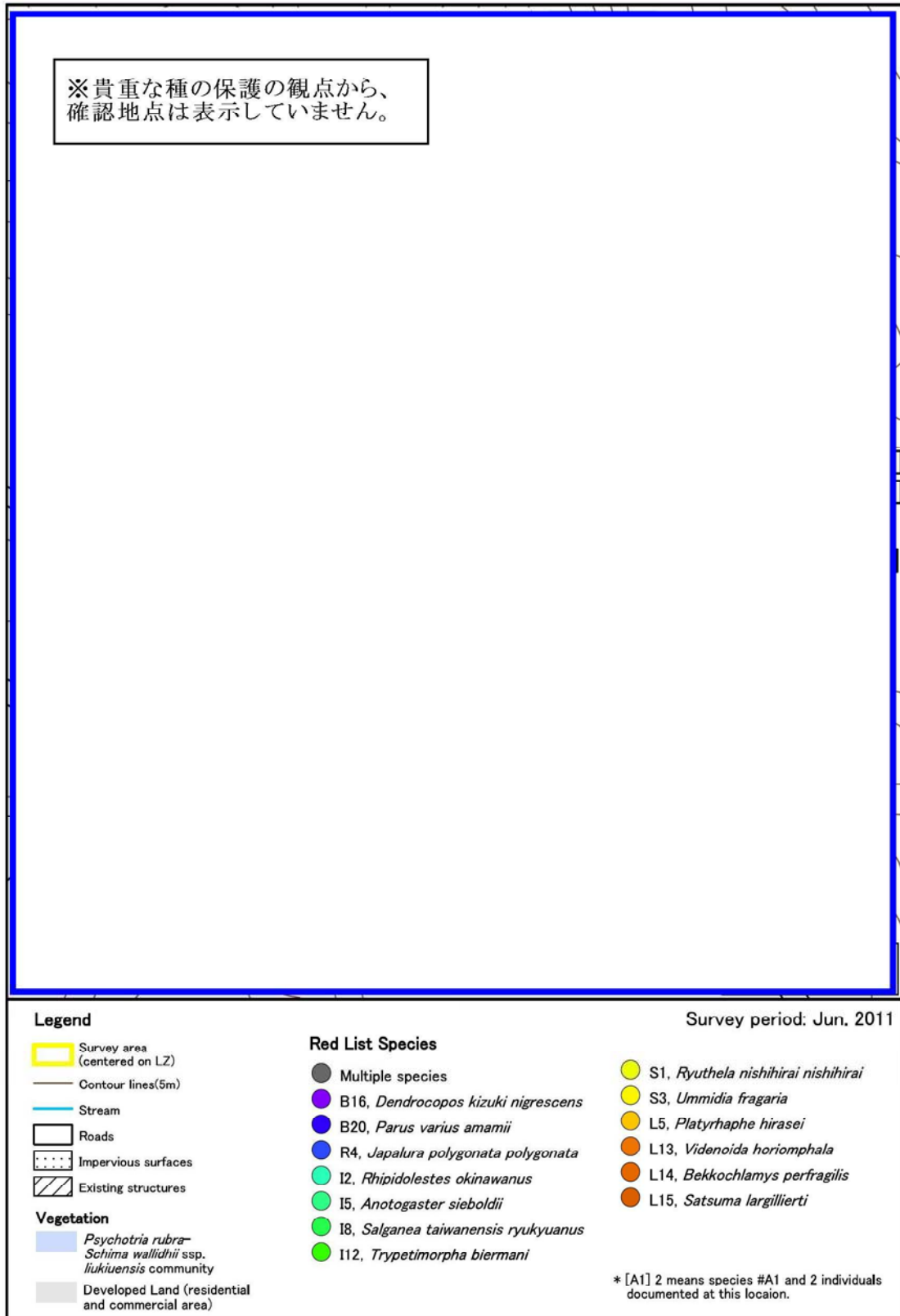


Figure 3-20(2) Locations of Red List Fauna Species Near LZ Magpie

CTA Red Listed Species

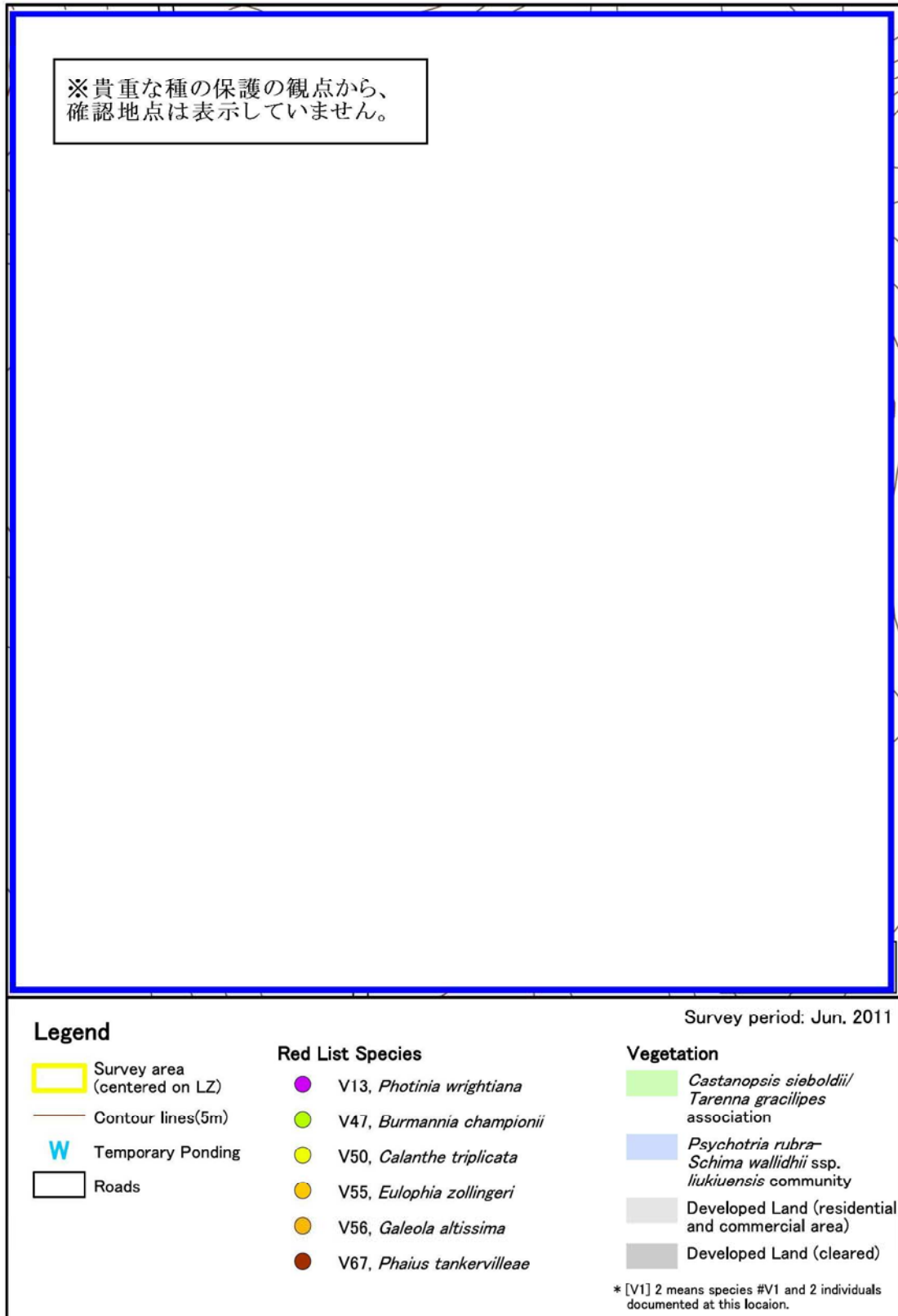


Figure 3-21(1) Locations of Red List Flora Species Near LZ Petrel

CTA Red Listed Species

※貴重な種の保護の観点から、
確認地点は表示していません。

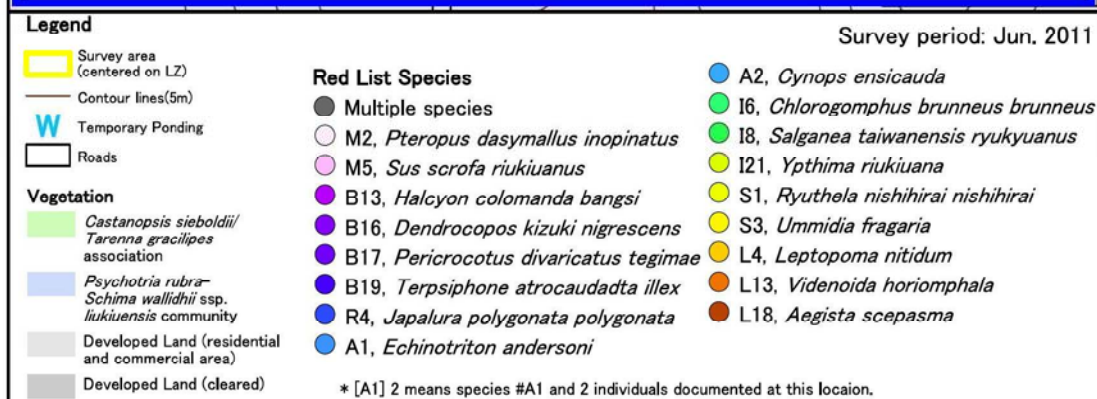


Figure 3-21(2) Locations of Red List Fauna Species Near LZ Petrel

CTA Red Listed Species

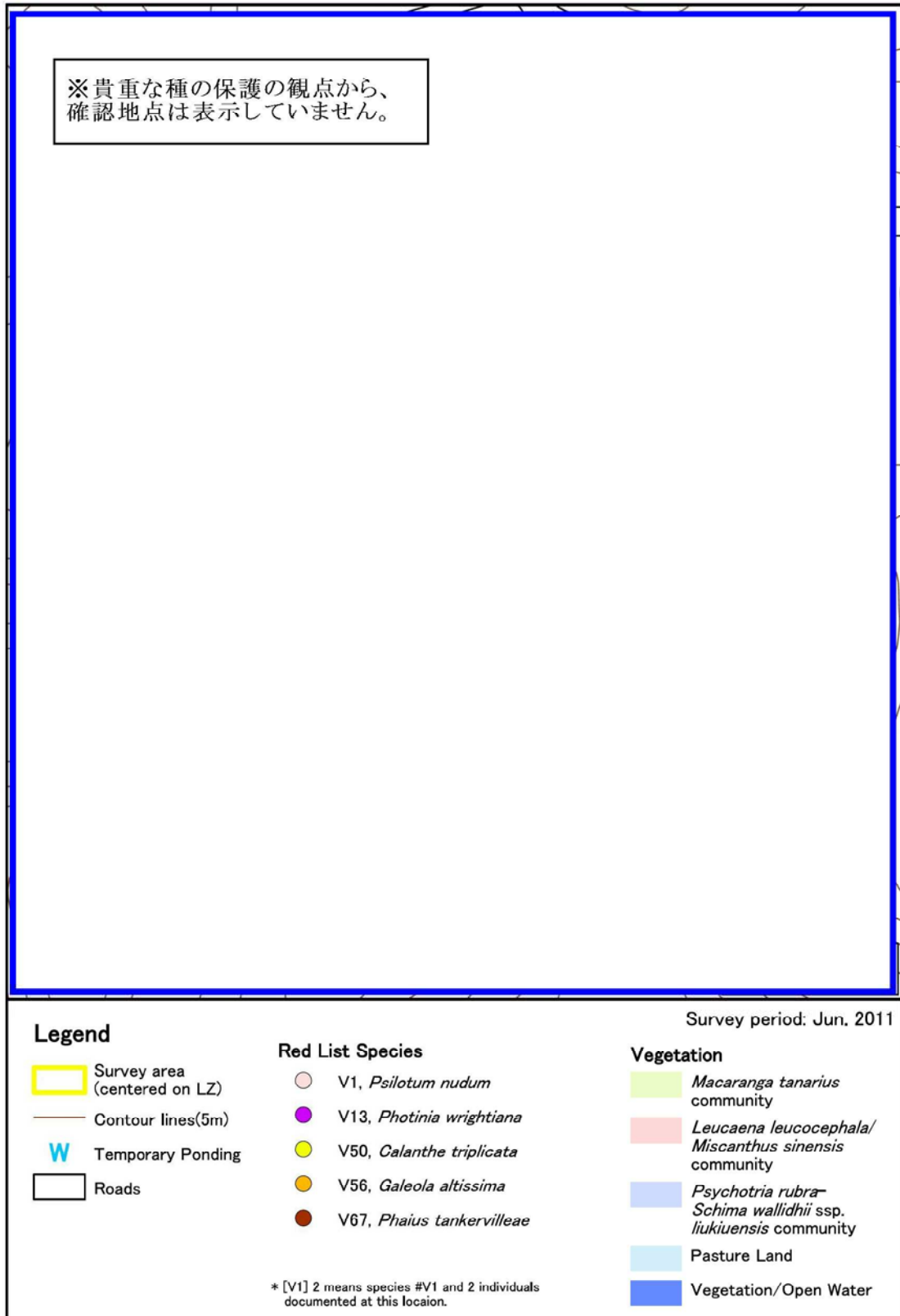


Figure 3-22(1) Locations of Red List Flora Species Near LZ Phoenix

CTA Red Listed Species

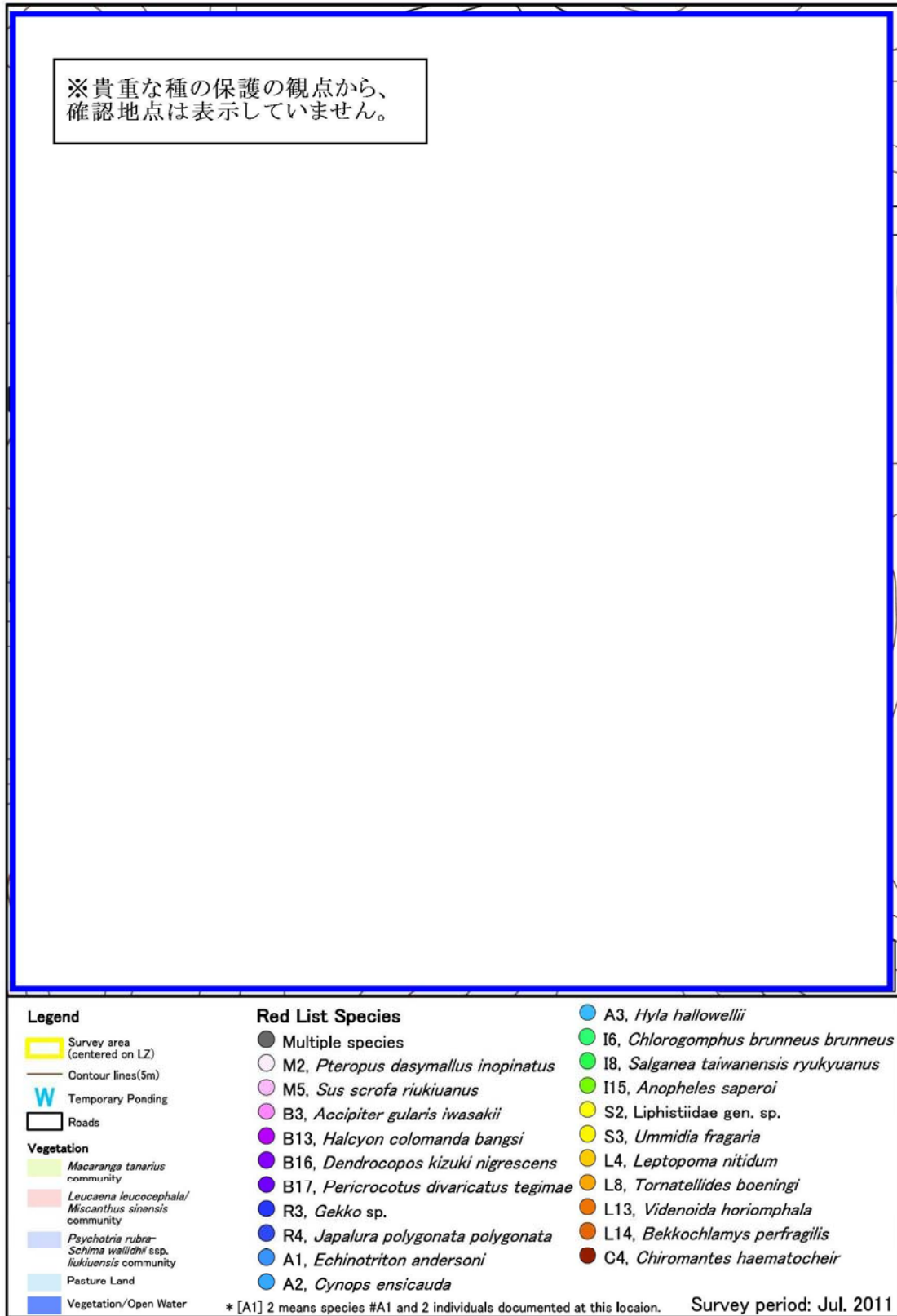


Figure 3-22(2) Locations of Red List Fauna Species Near LZ Phoenix

CTA Red Listed Species

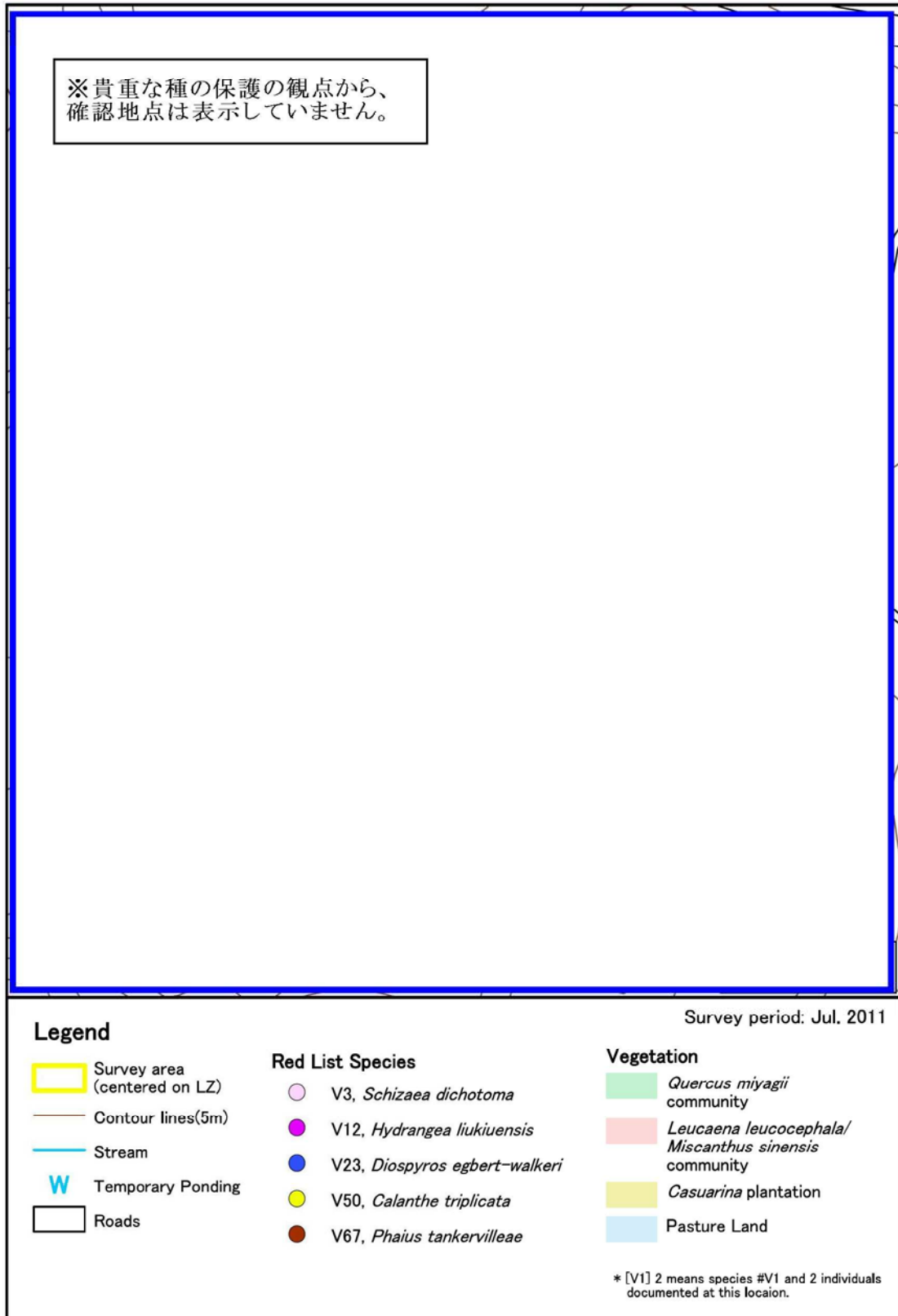


Figure 3-23(1) Locations of Red List Flora Species Near LZ Rail

CTA Red Listed Species



Figure 3-23(2) Locations of Red List Fauna Species Near LZ Rail

CTA Red Listed Species

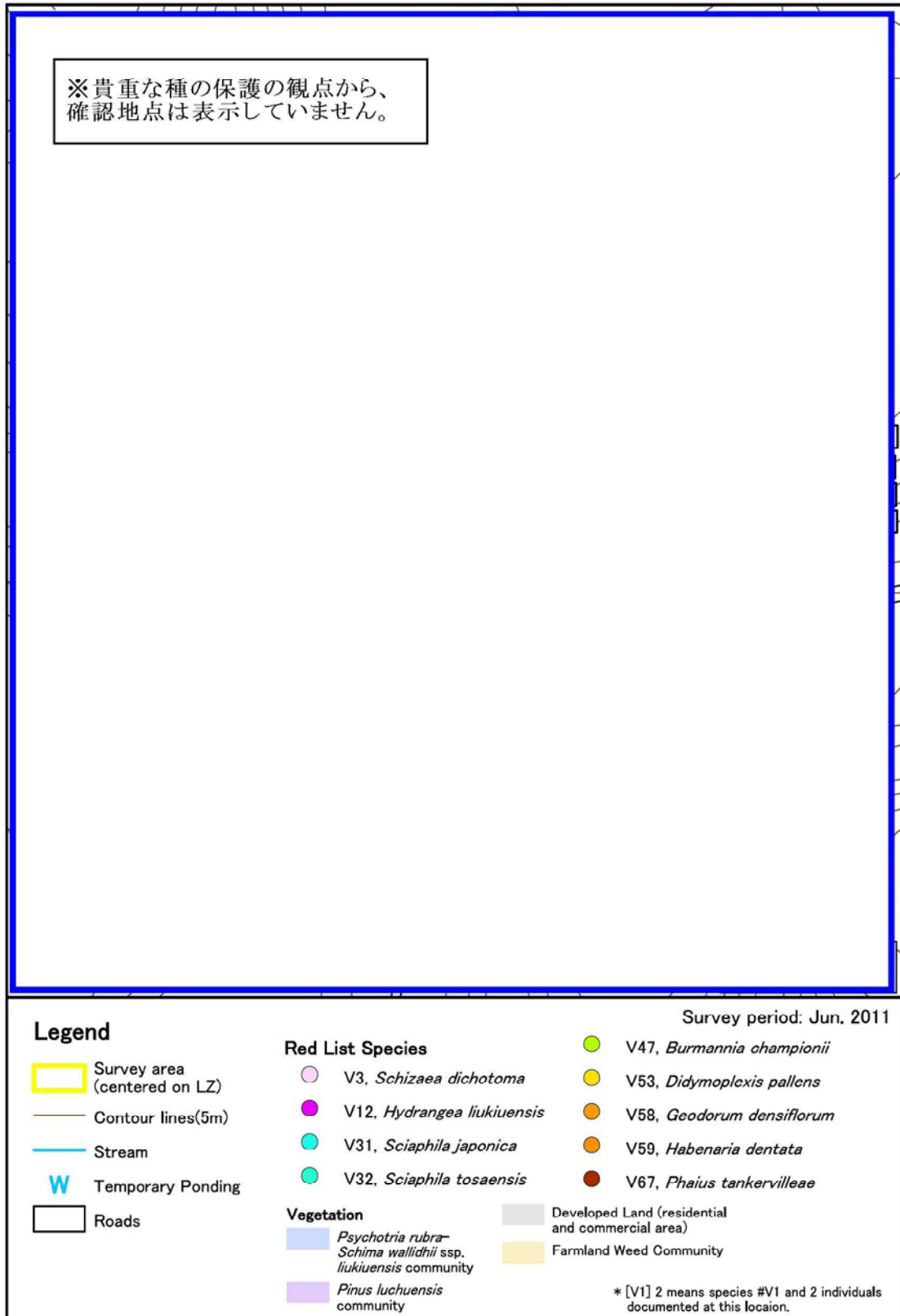


Figure 3-24(1) Locations of Red List Flora Species Near LZ Raven

CTA Red Listed Species

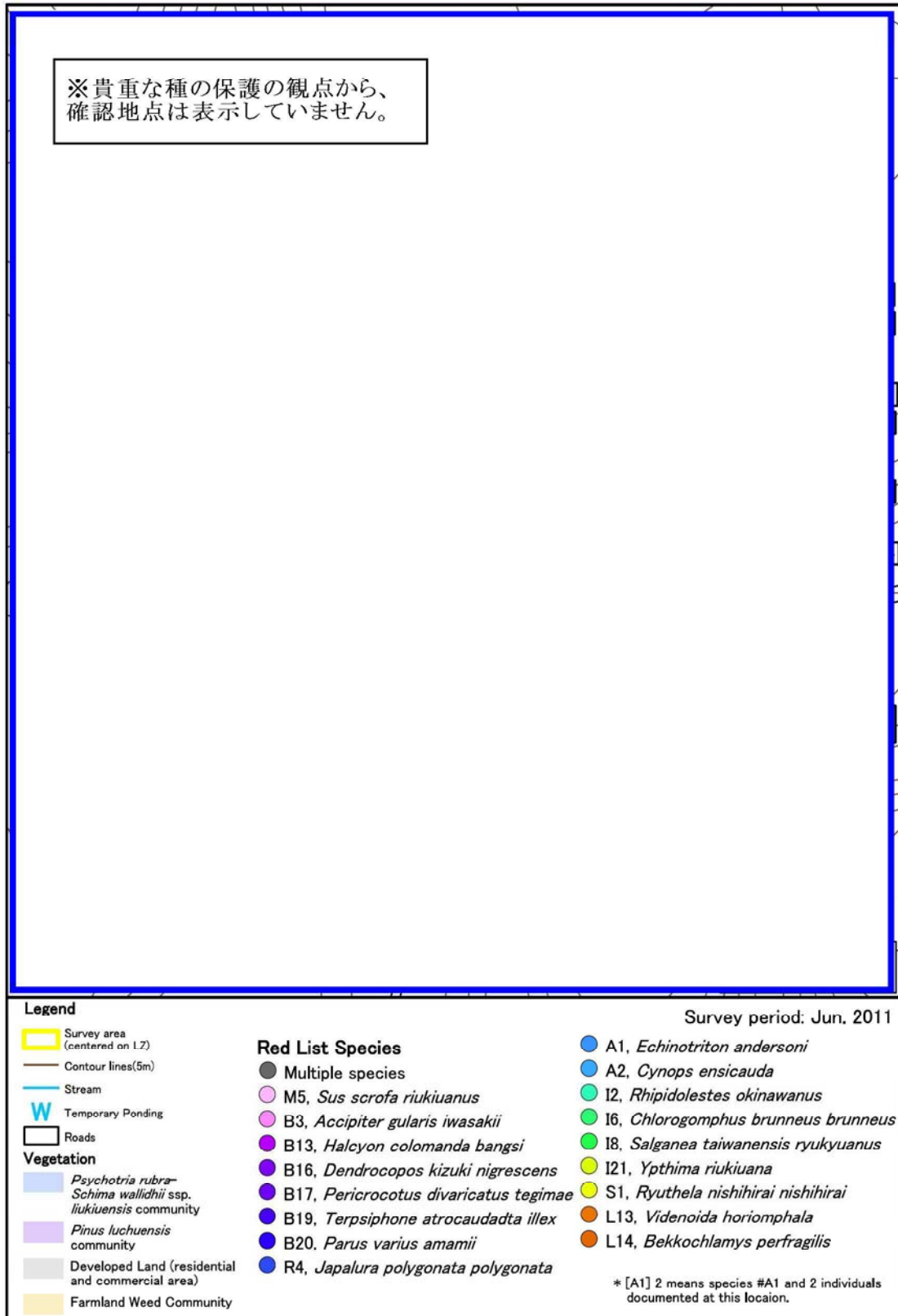


Figure 3-24(2) Locations of Red List Fauna Species Near LZ Raven

CTA Red Listed Species

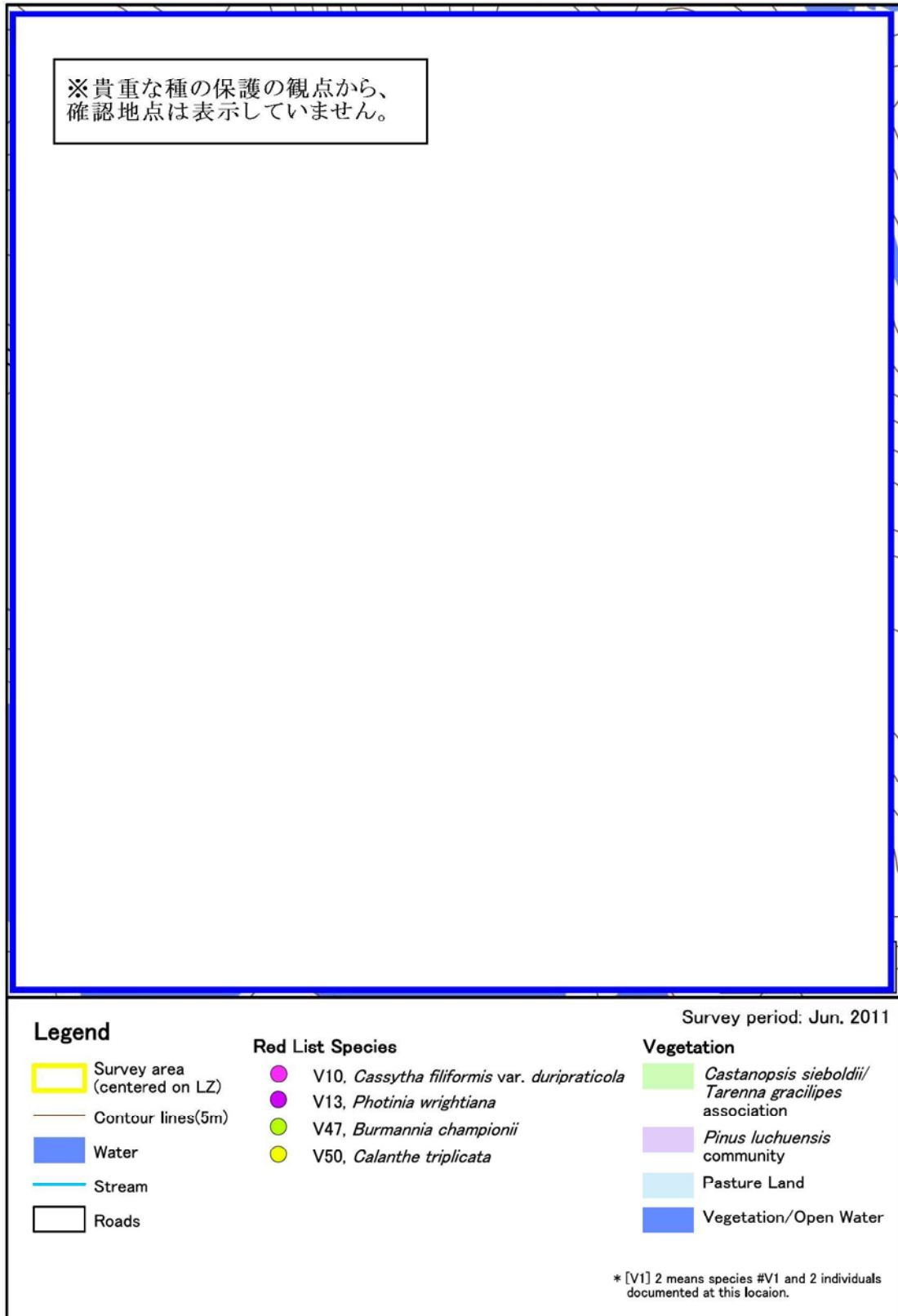


Figure 3-25(1) Locations of Red List Flora Species Near LZ Rook

CTA Red Listed Species



Figure 3-25(2) Locations of Red List Fauna Species Near LZ Rook

CTA Red Listed Species

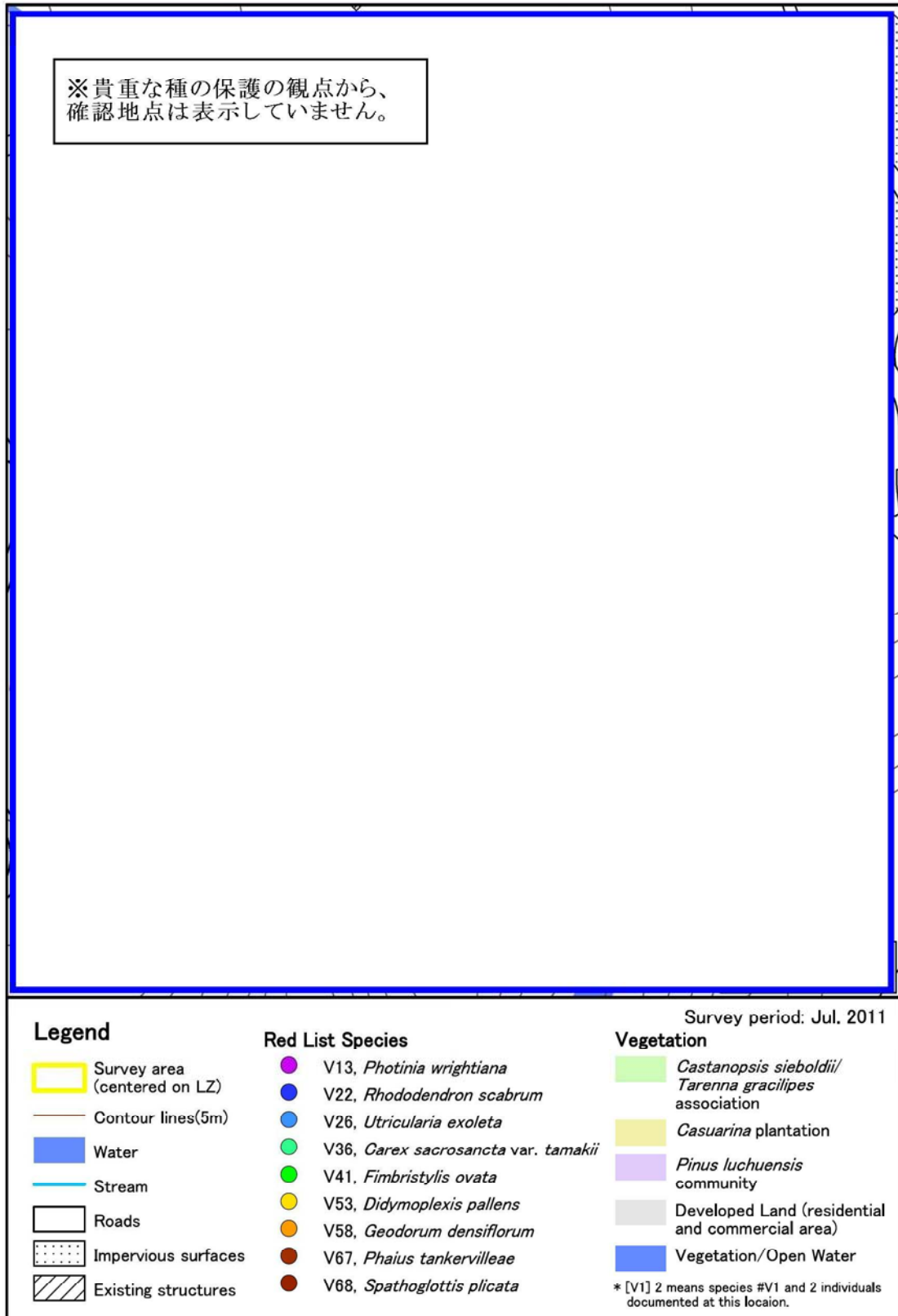


Figure 3-26(1) Locations of Red List Flora Species Near LZ Swallow

CTA Red Listed Species



Figure 3-26(2) Locations of Red List Fauna Species Near LZ Swallow

CTA Red Listed Species

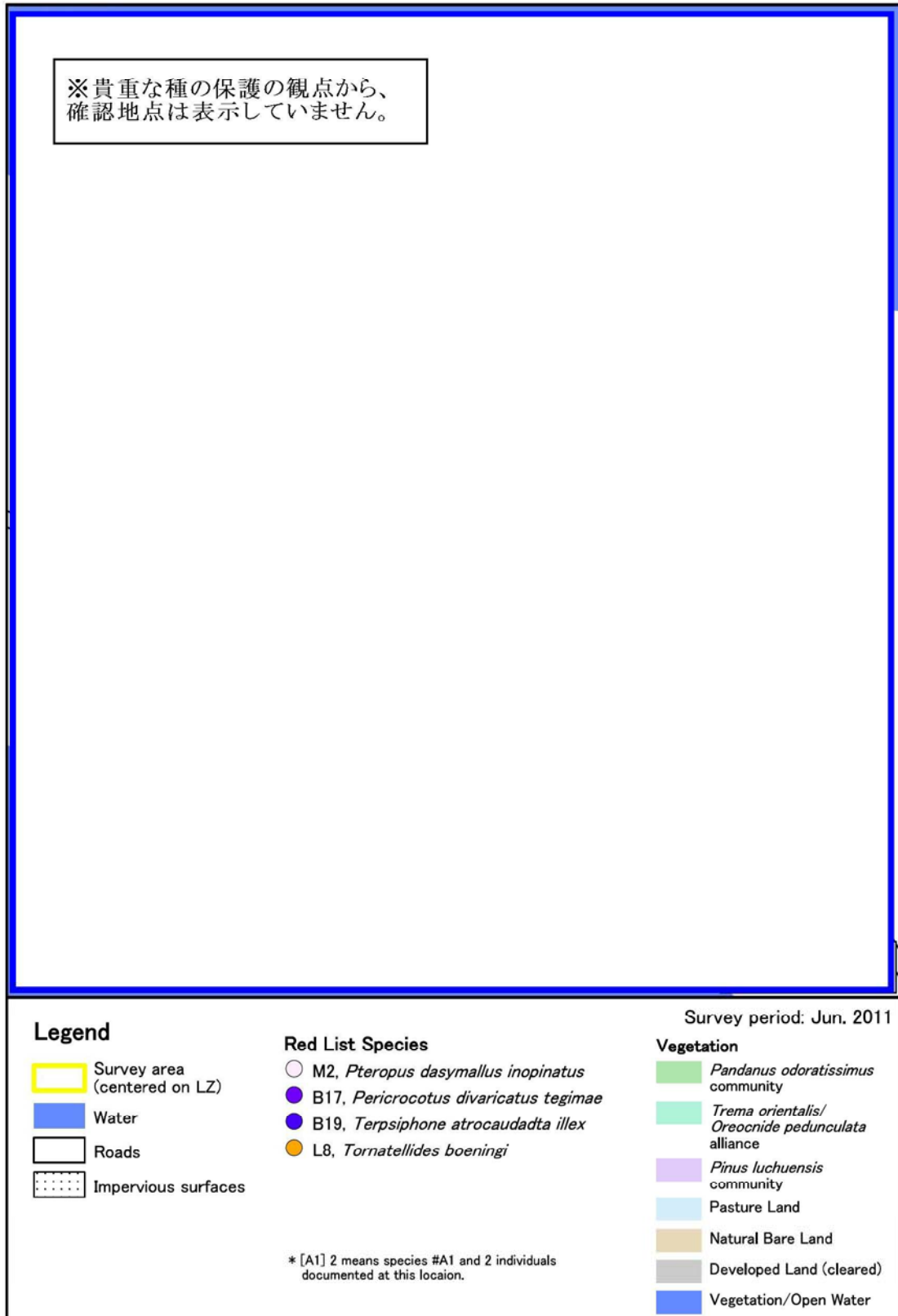


Figure 3-27 Locations of Red List Fauna Species Near LZ Swan

CTA Red Listed Species

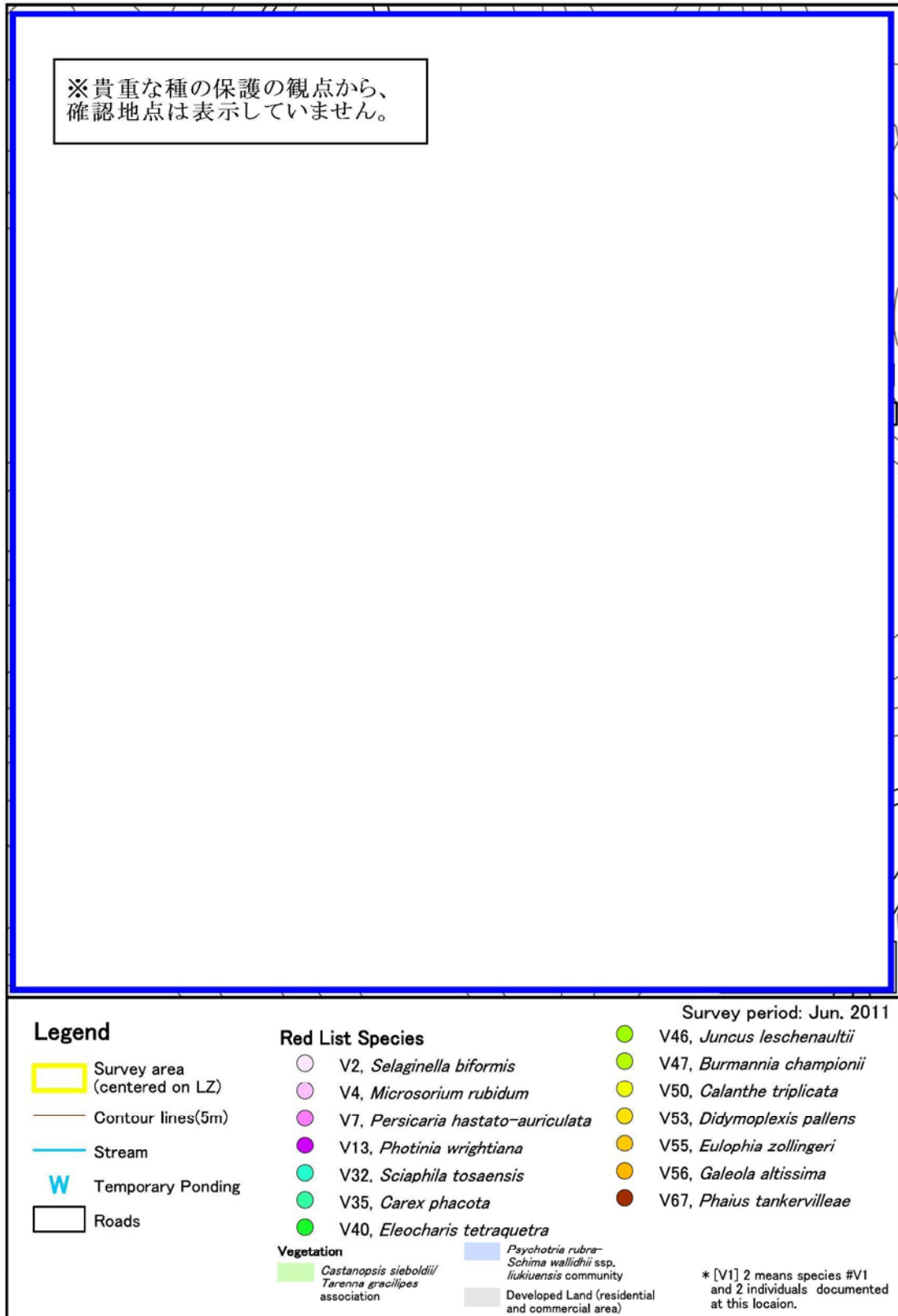


Figure 3-28(1) Locations of Red List Flora Species Near LZ Tern

CTA Red Listed Species



Figure 3-28(2) Locations of Red List Fauna Species Near LZ Tern

CTA Red Listed Species

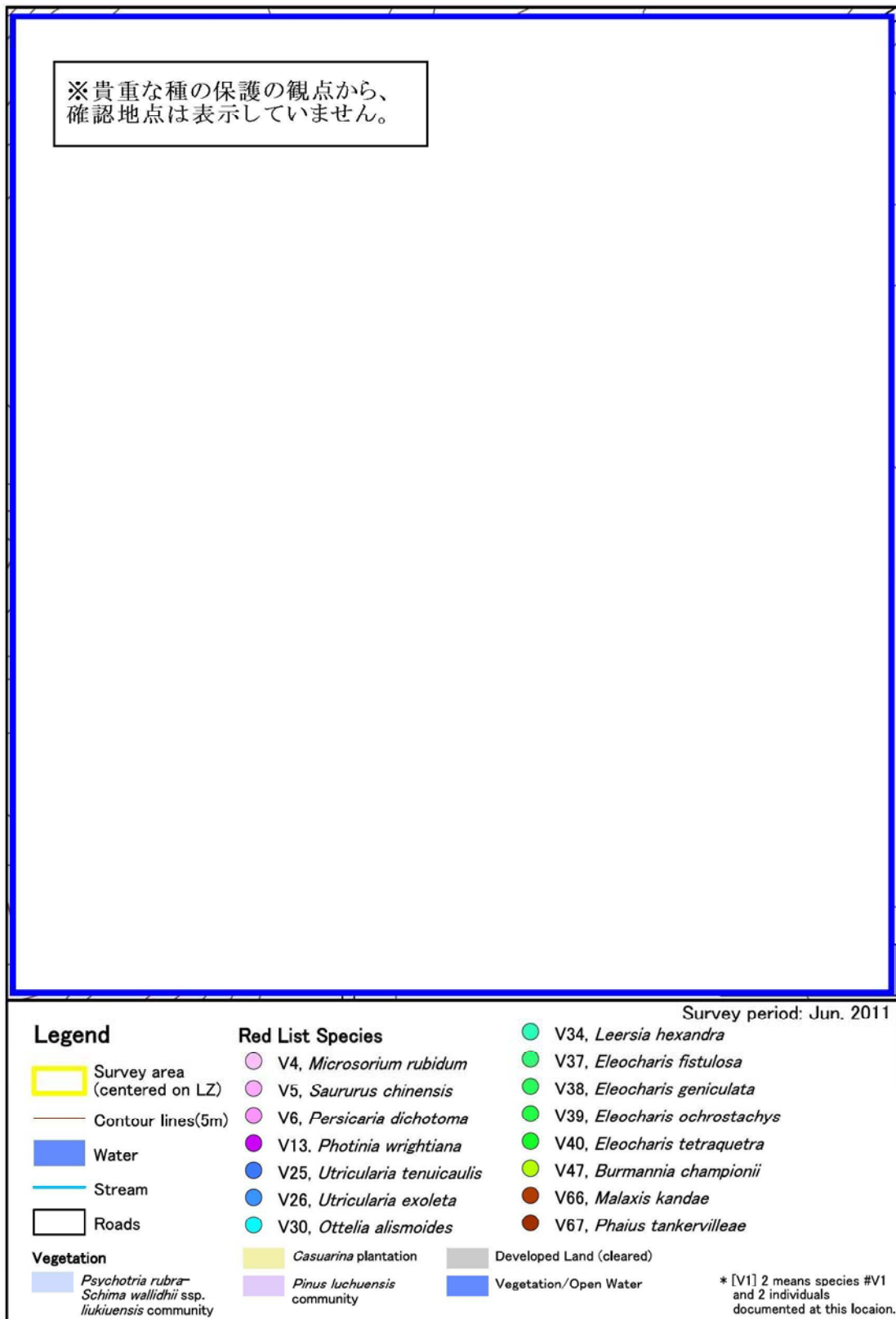


Figure 3-29(1) Locations of Red List Flora Species Near LZ Turkey

CTA Red Listed Species

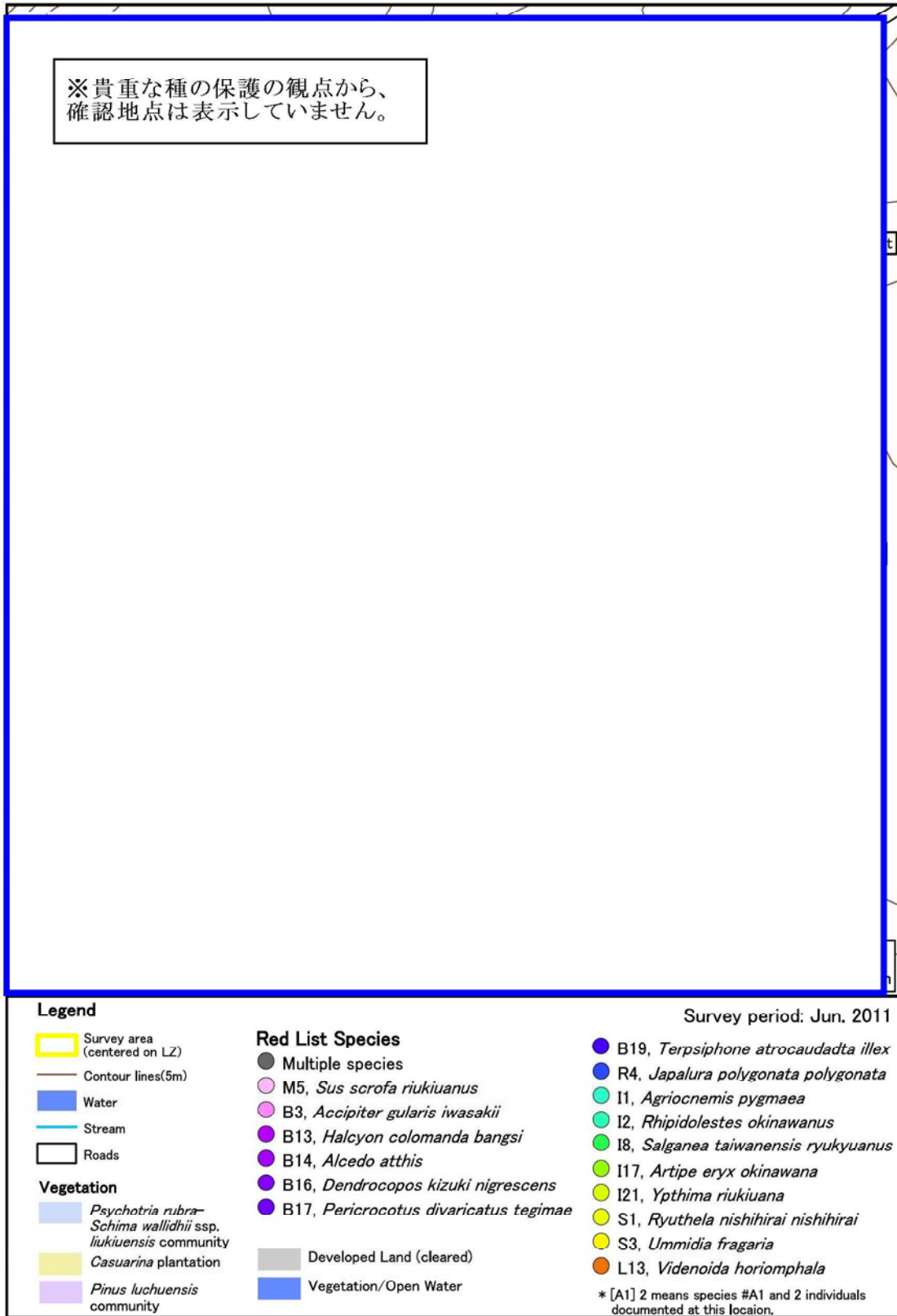


Figure 3-29(2) Locations of Red List Fauna Species Near LZ Turkey

CTA Red Listed Species

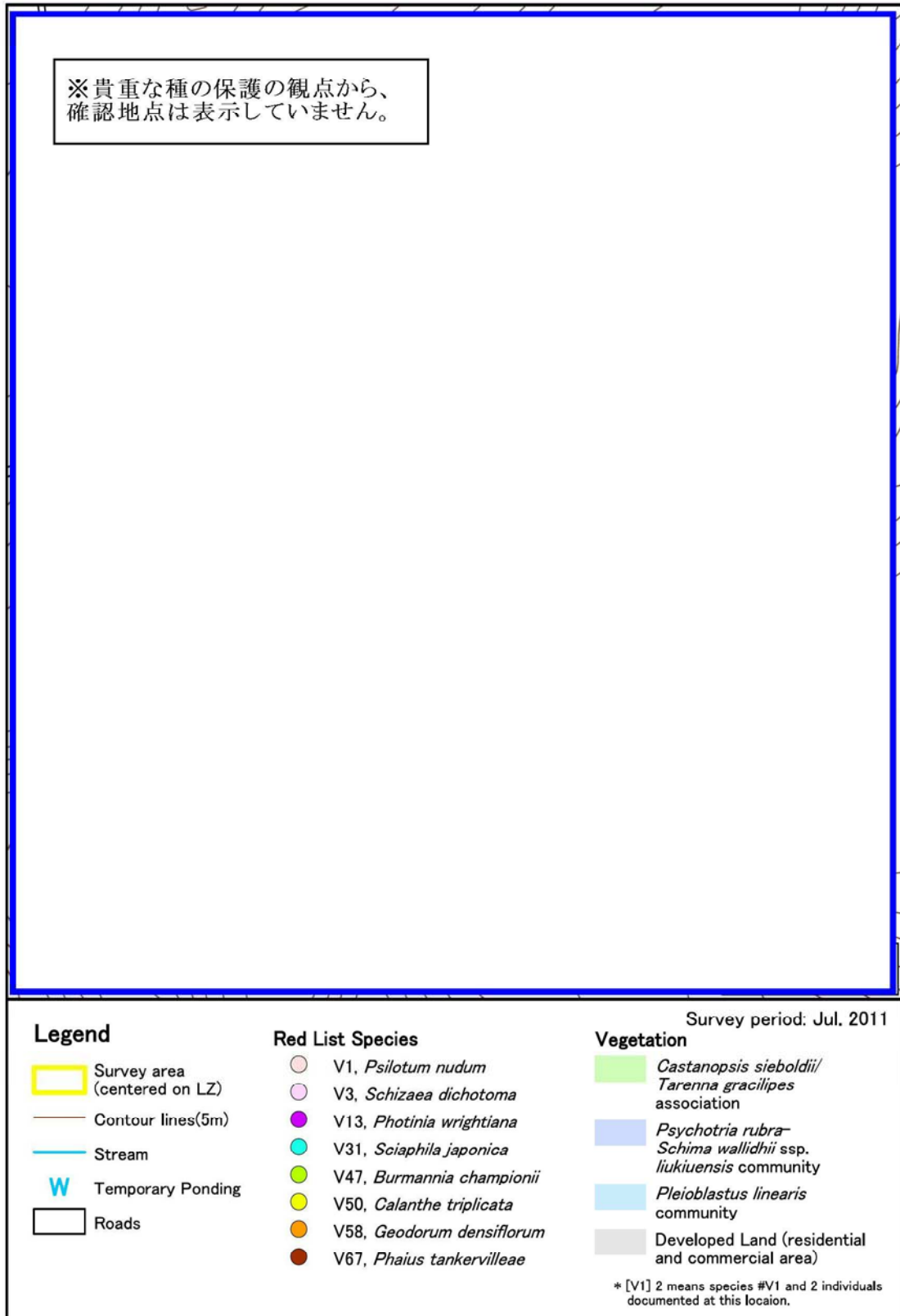


Figure 3-30(1) Locations of Red List Flora Species Near LZ Wren

CTA Red Listed Species



Figure 3-30(2) Locations of Red List Fauna Species Near LZ Wren

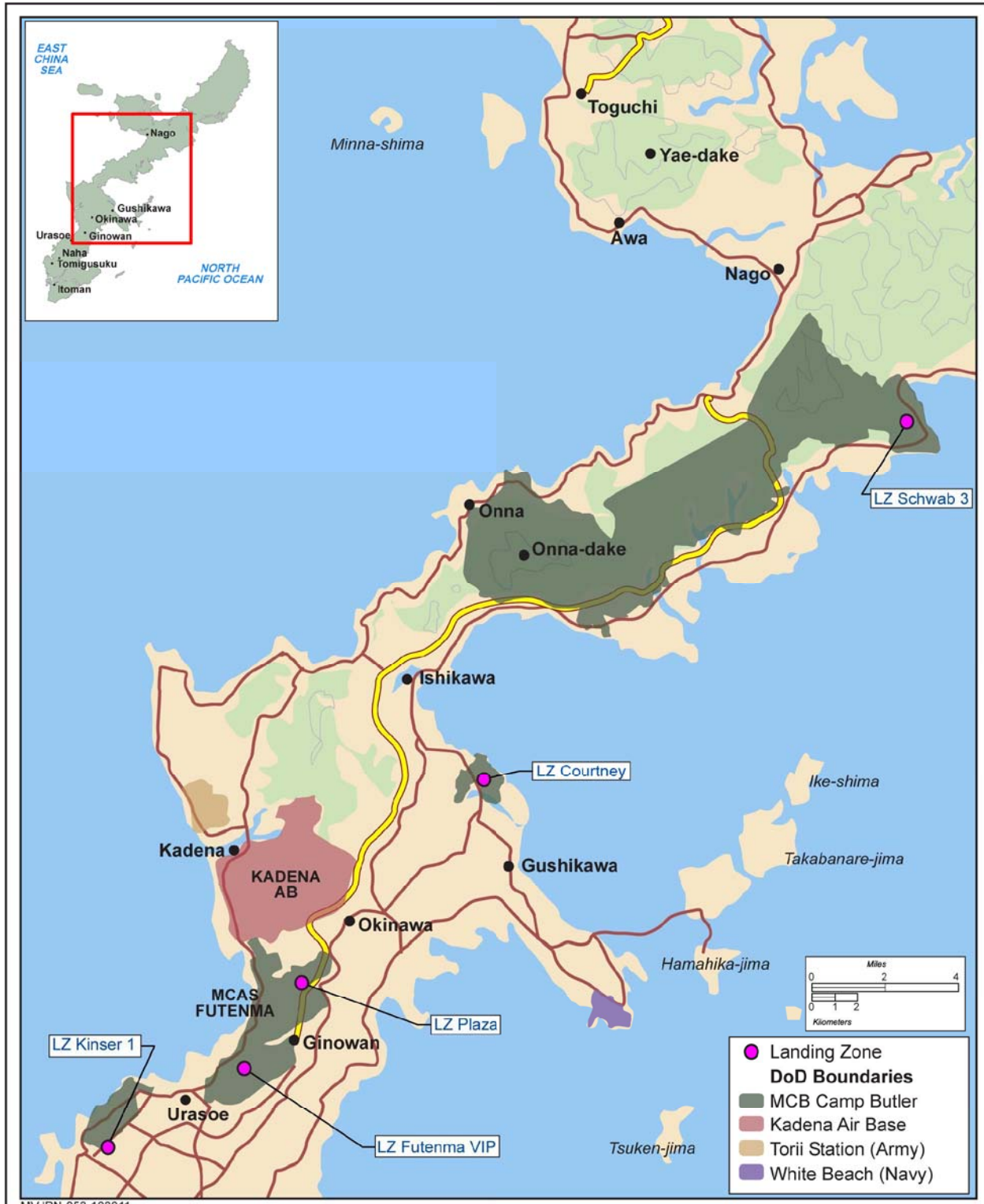
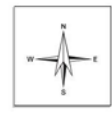


Figure 3.D. LZ Locations within the Administrative Area



Administrative Red Listed Species

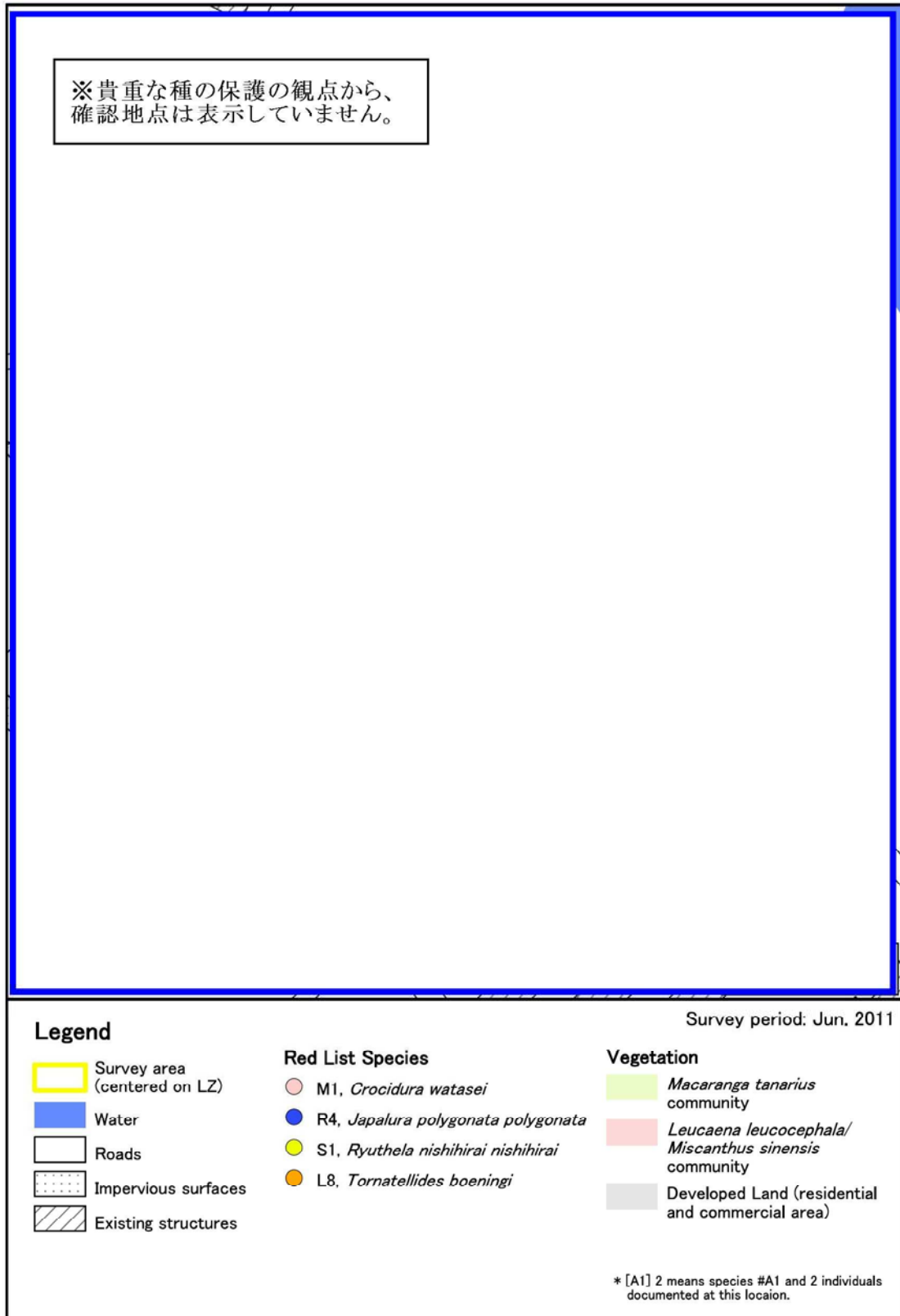


Figure 3-31 Locations of Red List Fauna Species Near LZ Courtney

Administrative Red Listed Species

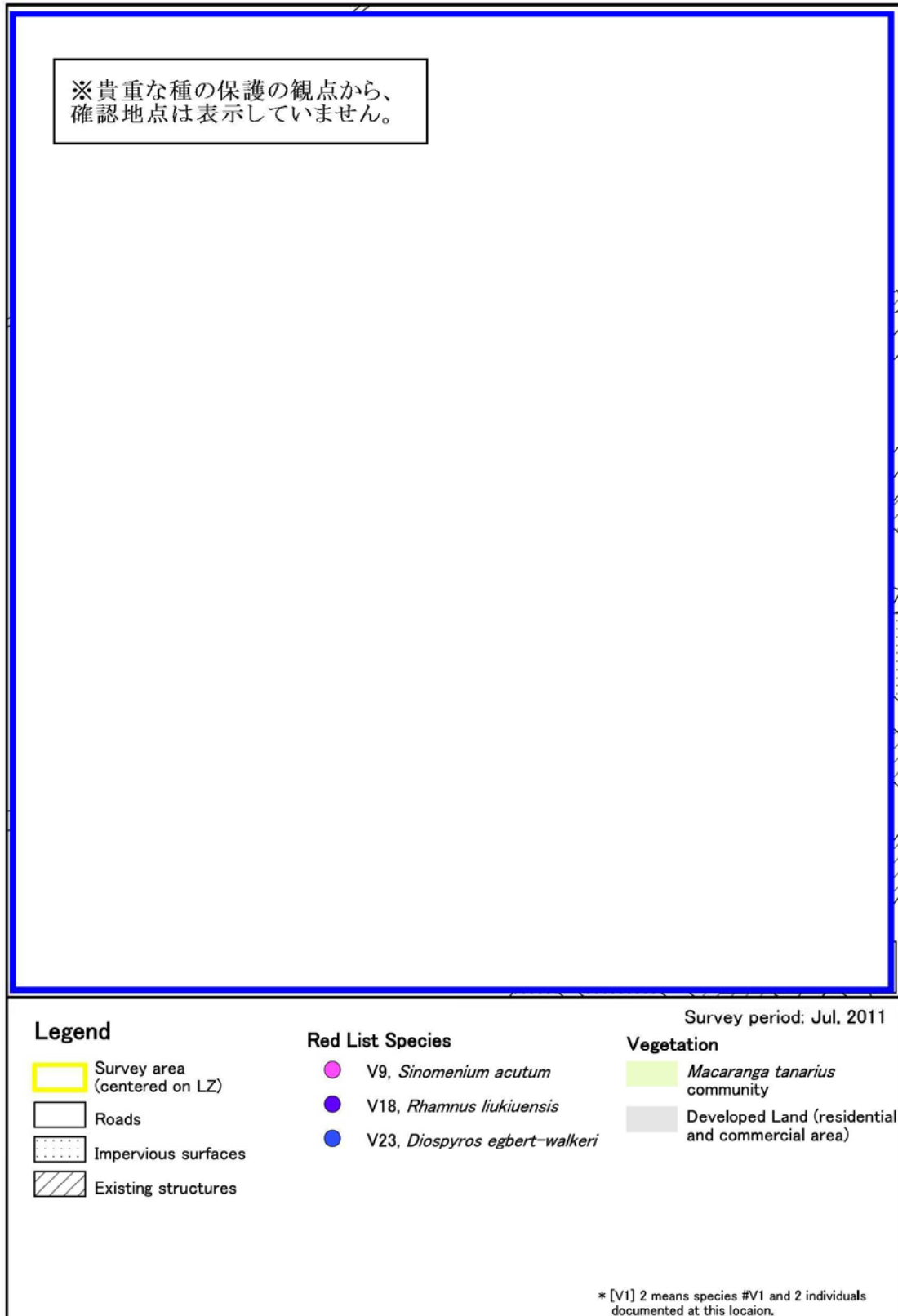


Figure 3-32(1) Locations of Red List Flora Species Near LZ Futenma VIP

Administrative Red Listed Species

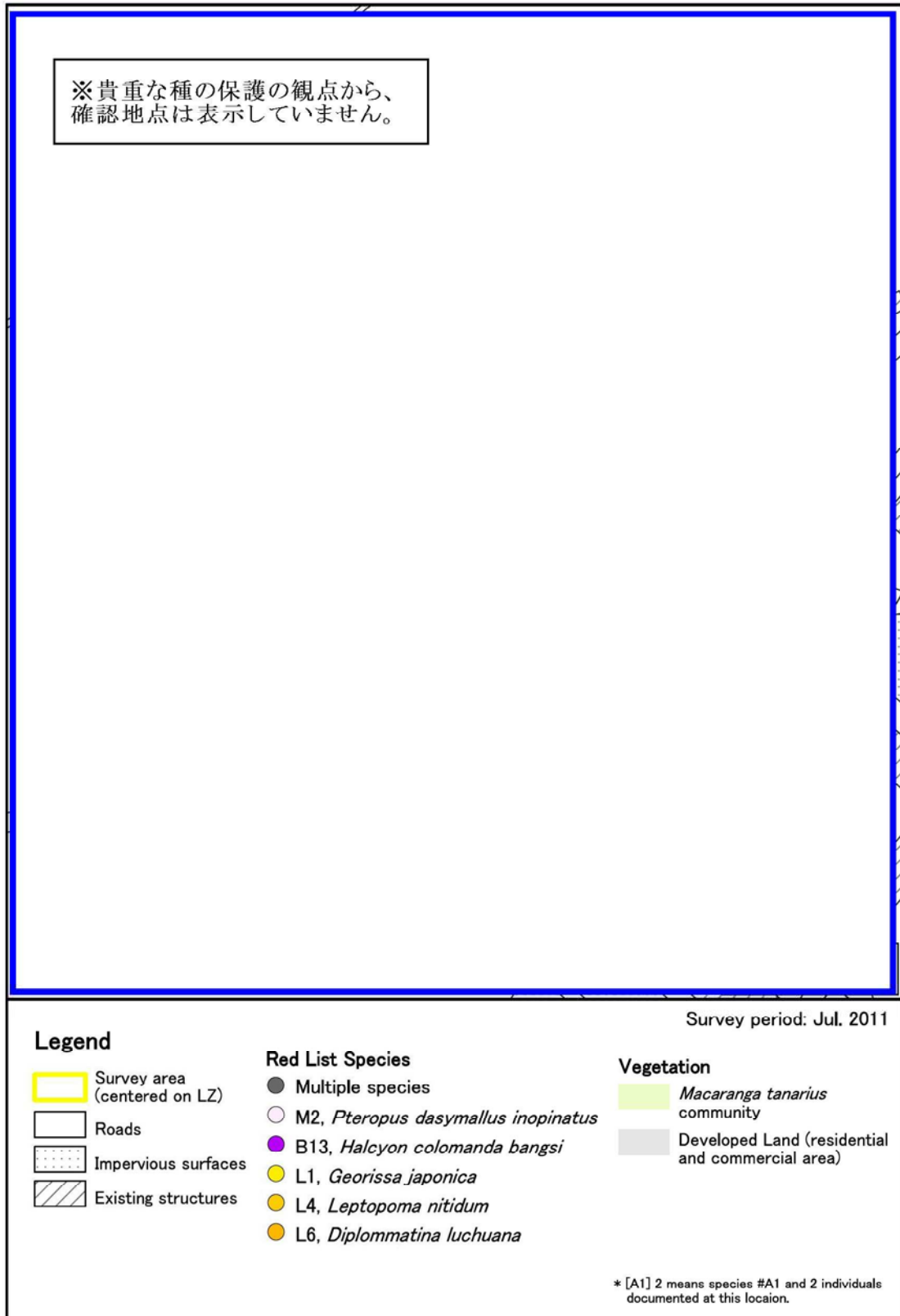


Figure 3-32(2) Locations of Red List Fauna Species Near LZ Futenma VIP

Administrative Red Listed Species

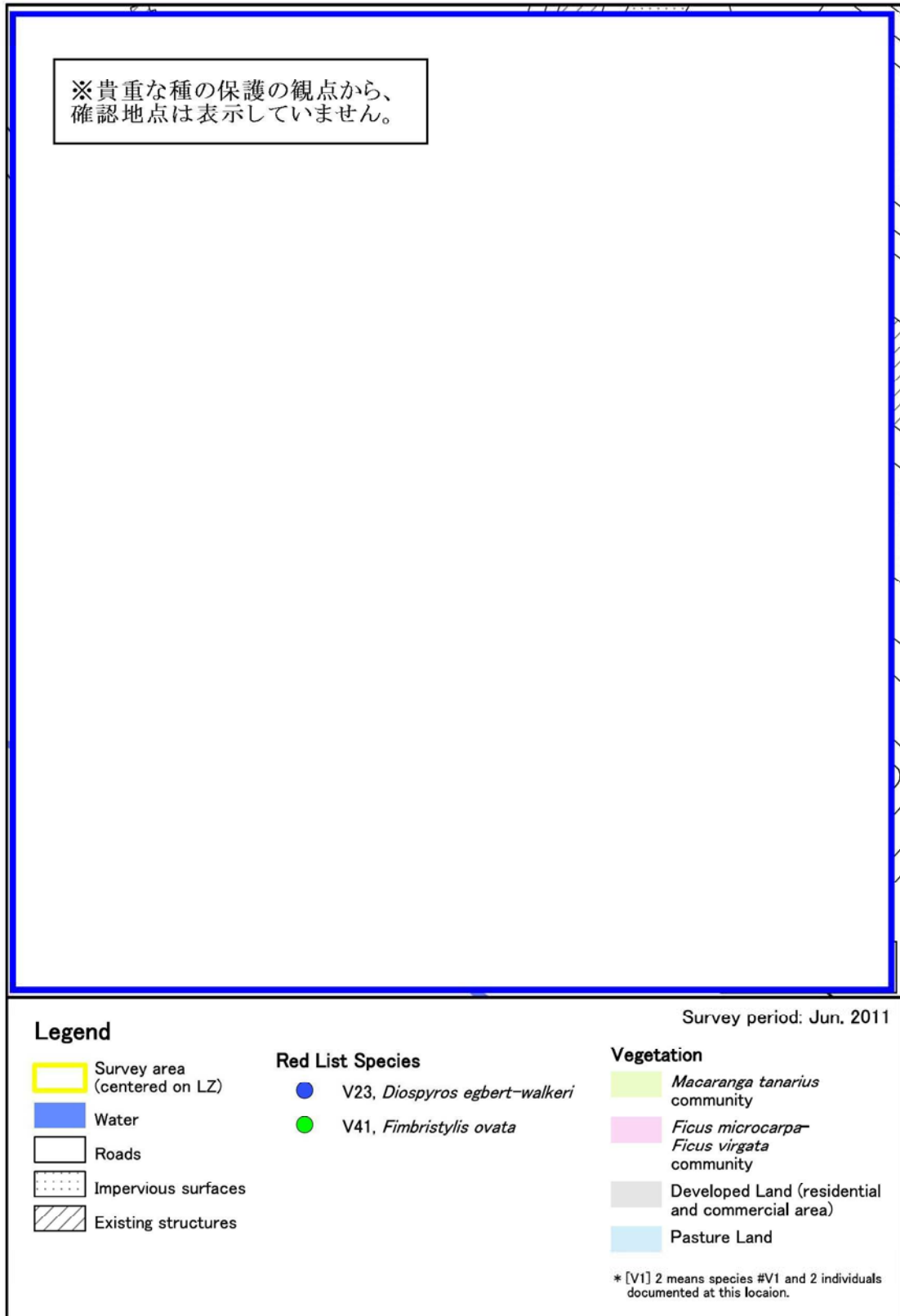


Figure 3-33(1) Locations of Red List Flora Species Near LZ Kinser 1

Administrative Red Listed Species

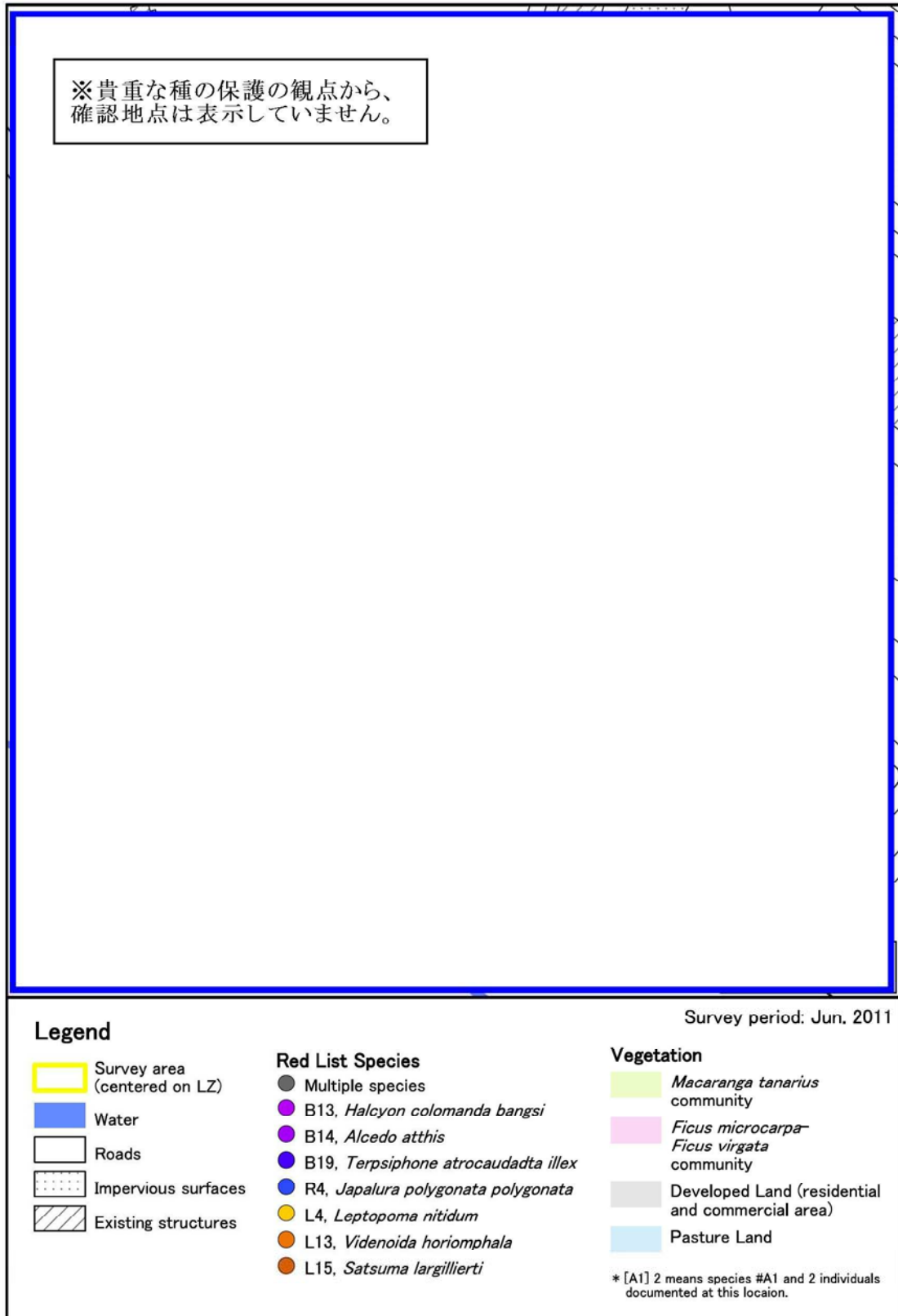


Figure 3-33(2) Locations of Red List Fauna Species Near LZ Kinser 1

Administrative Red Listed Species

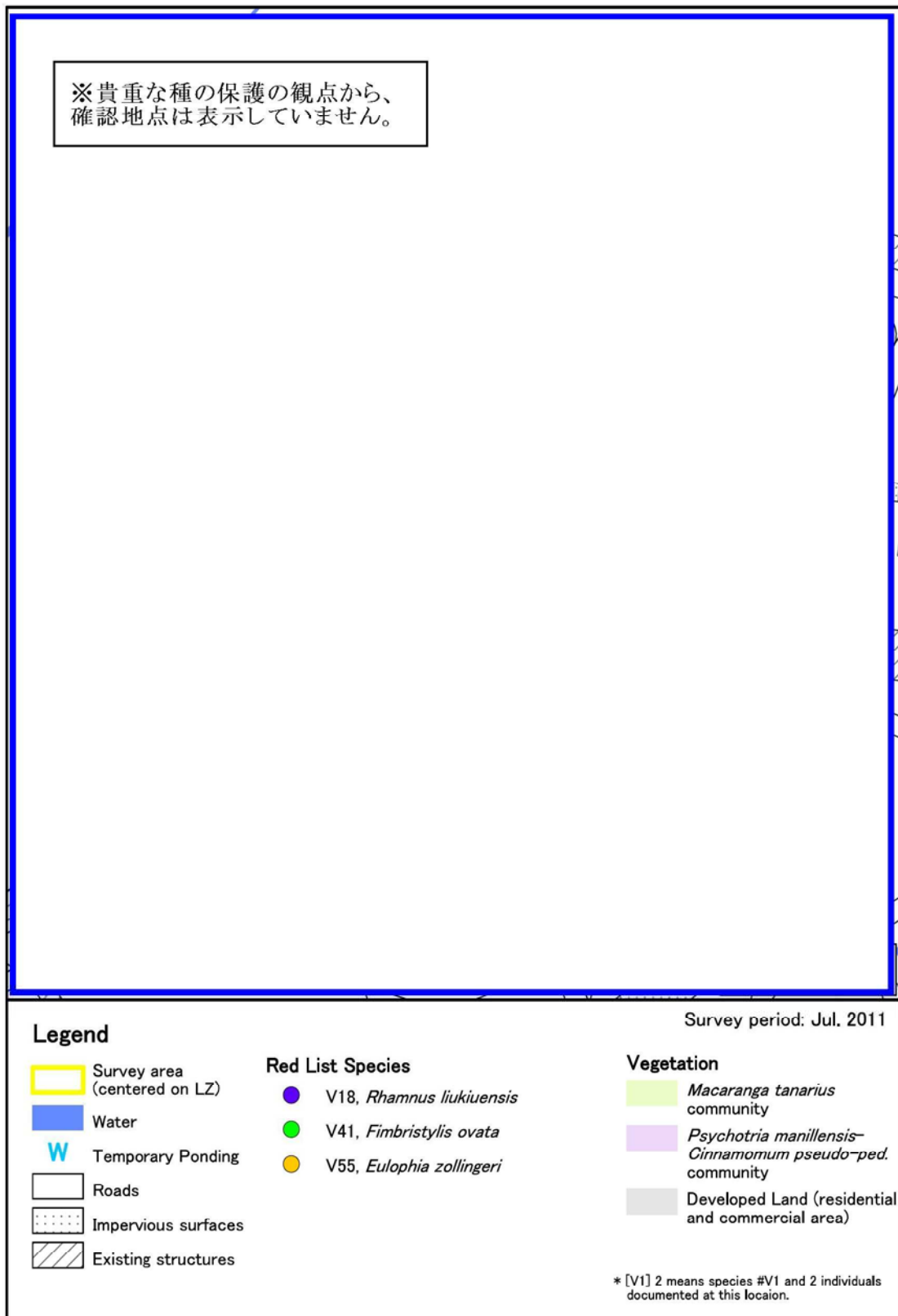


Figure 3-34(1) Locations of Red List Flora Species Near LZ Plaza

Administrative Red Listed Species

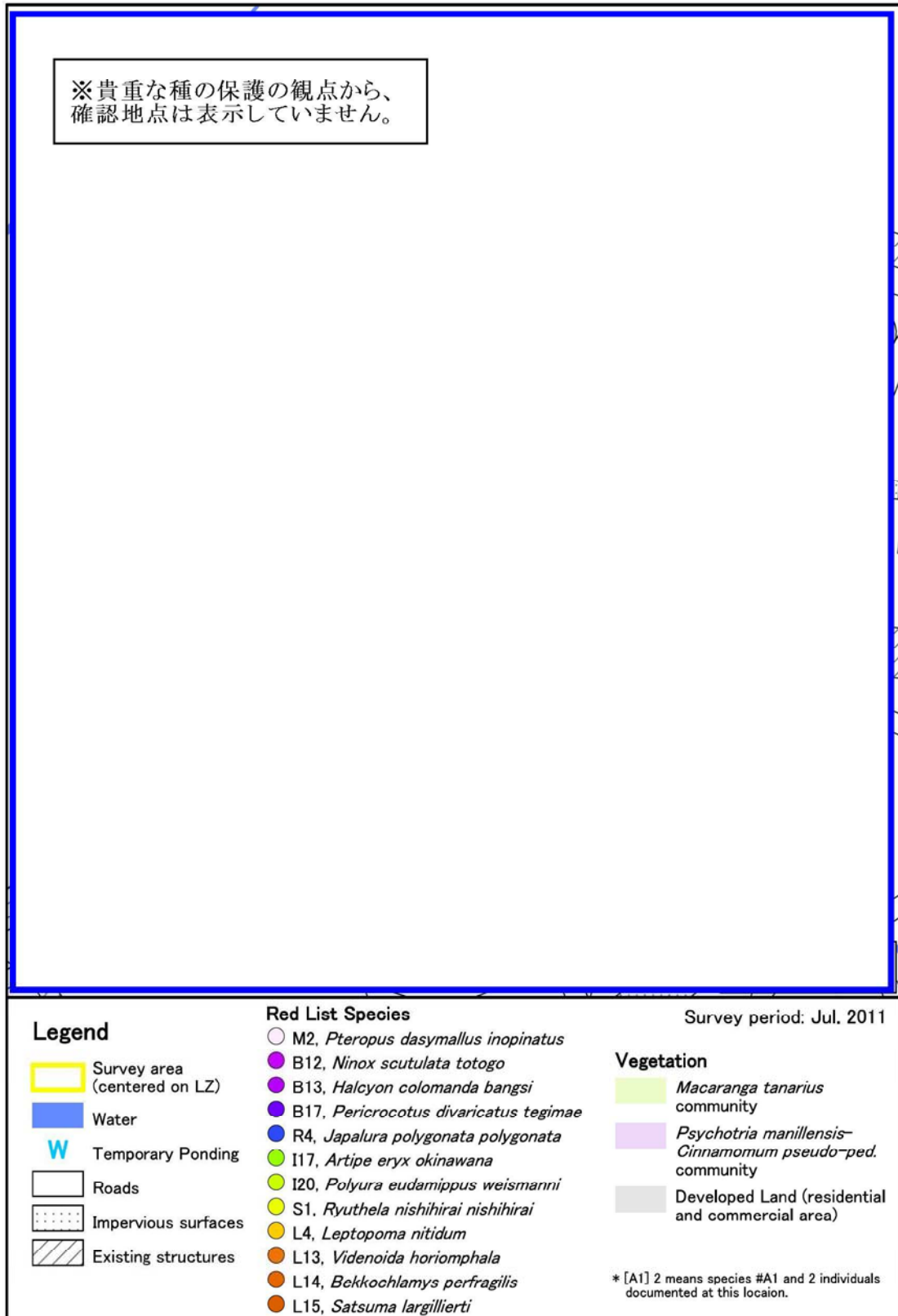


Figure 3-34(2) Locations of Red List Fauna Species Near LZ Plaza

Administrative Red Listed Species

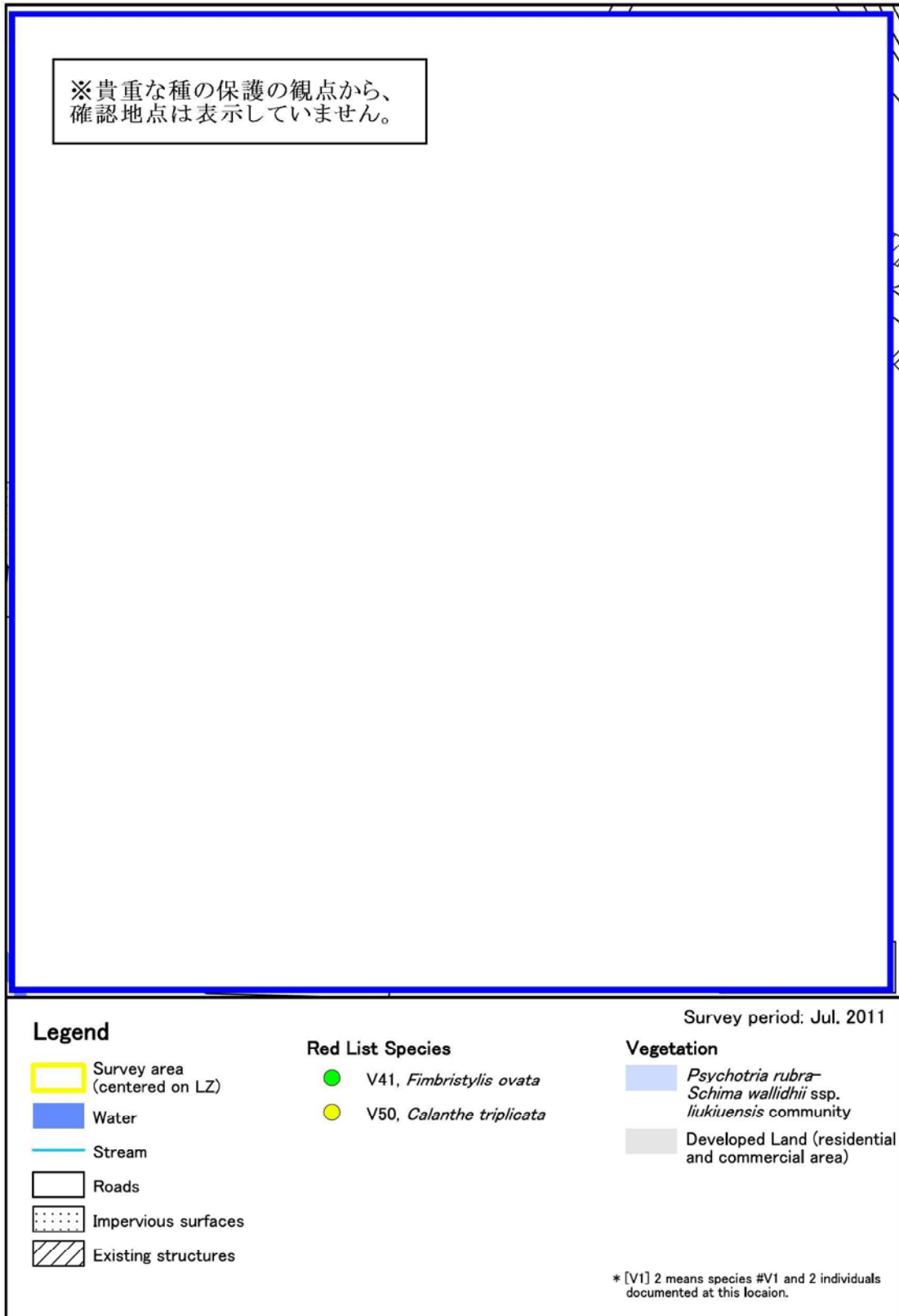


Figure 3-35(1) Locations of Red List Flora Species Near LZ Schwab 3

Administrative Red Listed Species



Figure 3-35(2) Locations of Red List Fauna Species Near LZ Schwab 3



Figure 4.A. LZ Survey Locations on Ie Shima

Ie Shima Protected Species Potential Habitat

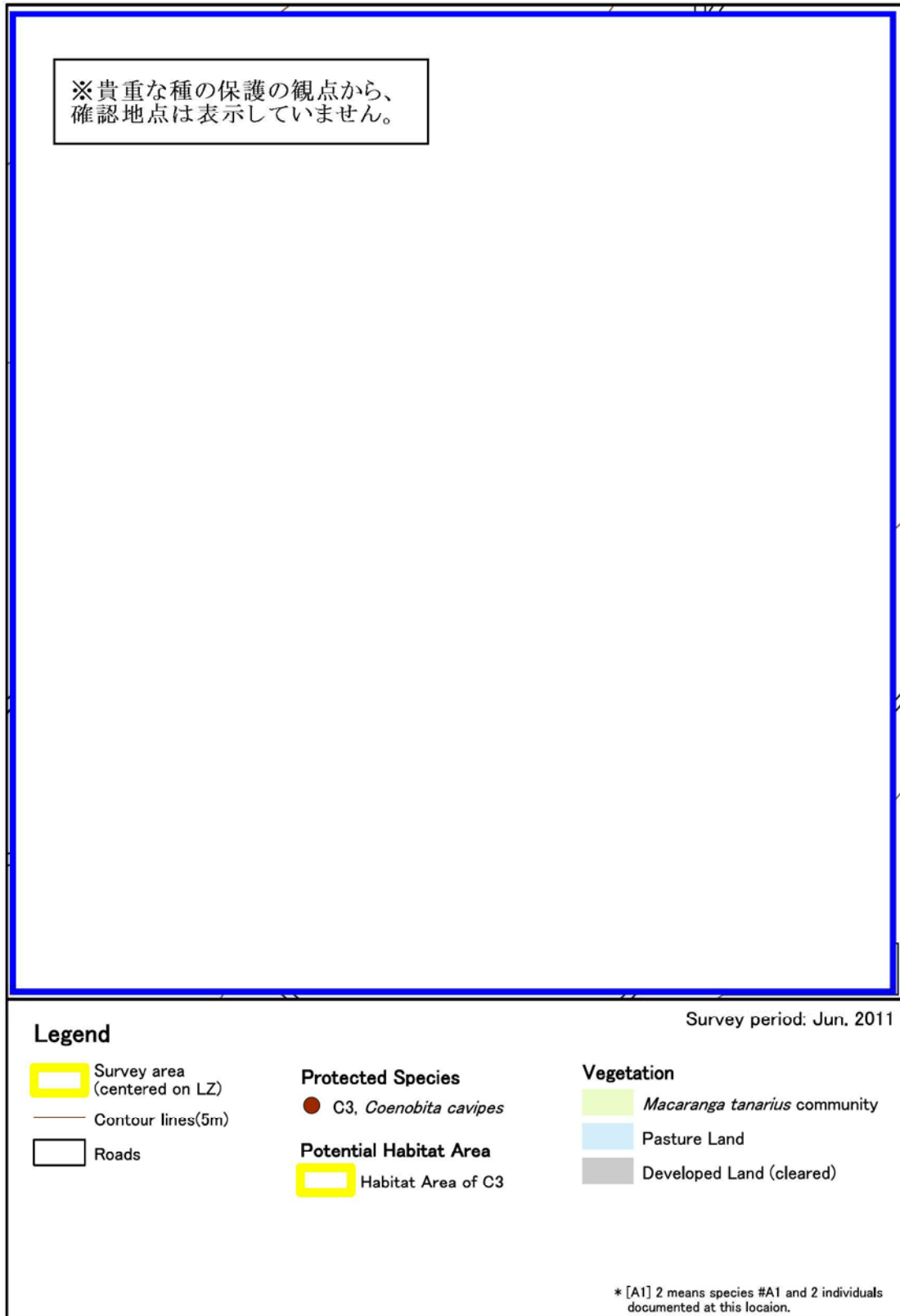
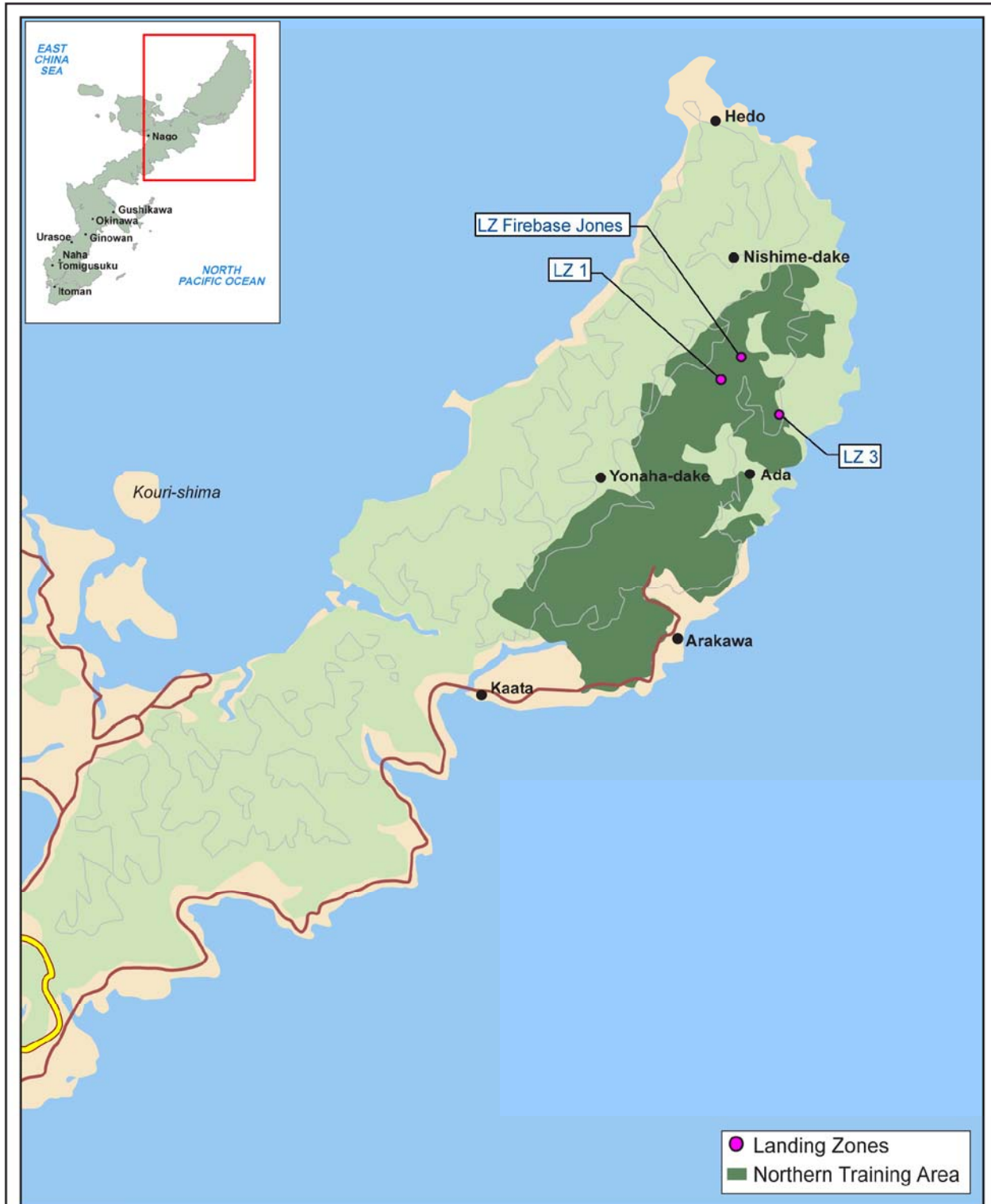
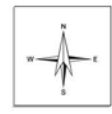


Figure 4-1 Protected Species Potential Habitat Area Near LHA/LHD



MVJPN-051-102011

Figure 4.B. LZ Locations within the Northern Training Area



NTA Protected Species Potential Habitat

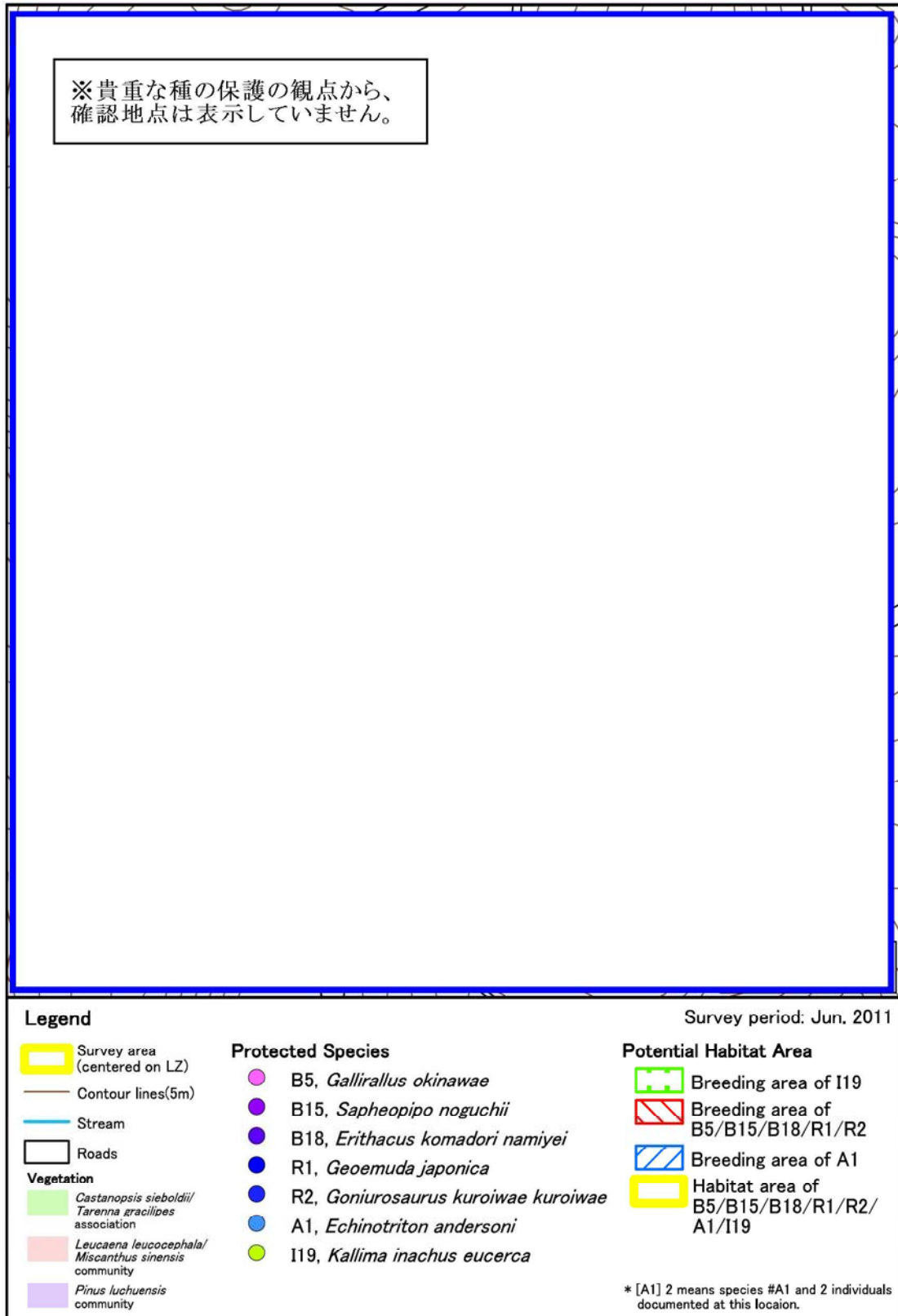


Figure 4-2 Protected Species Potential Habitat Area Near LZ 1

NTA Protected Species Potential Habitat

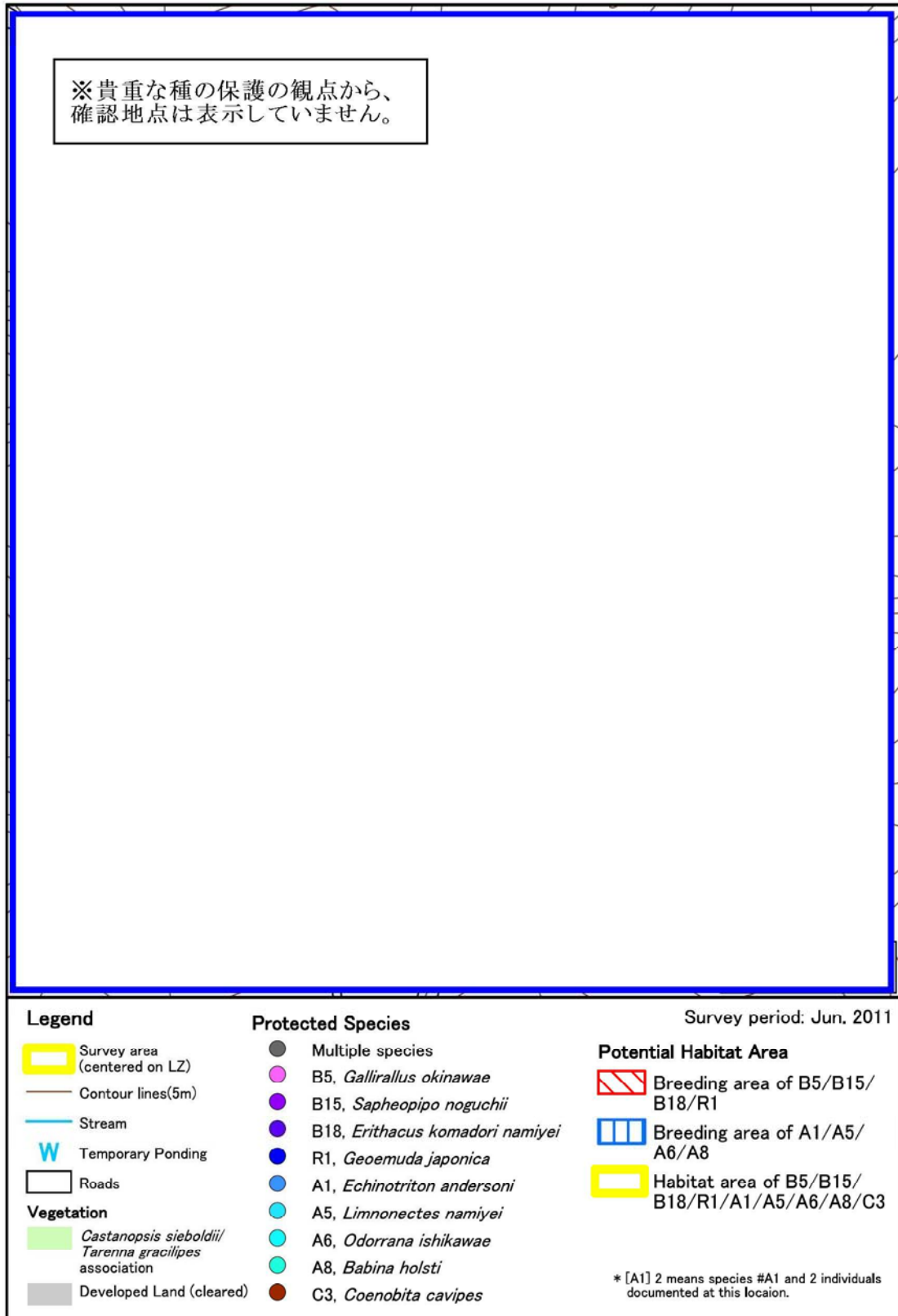


Figure 4-3 Protected Species Potential Habitat Area Near LZ 3

NTA Protected Species Potential Habitat

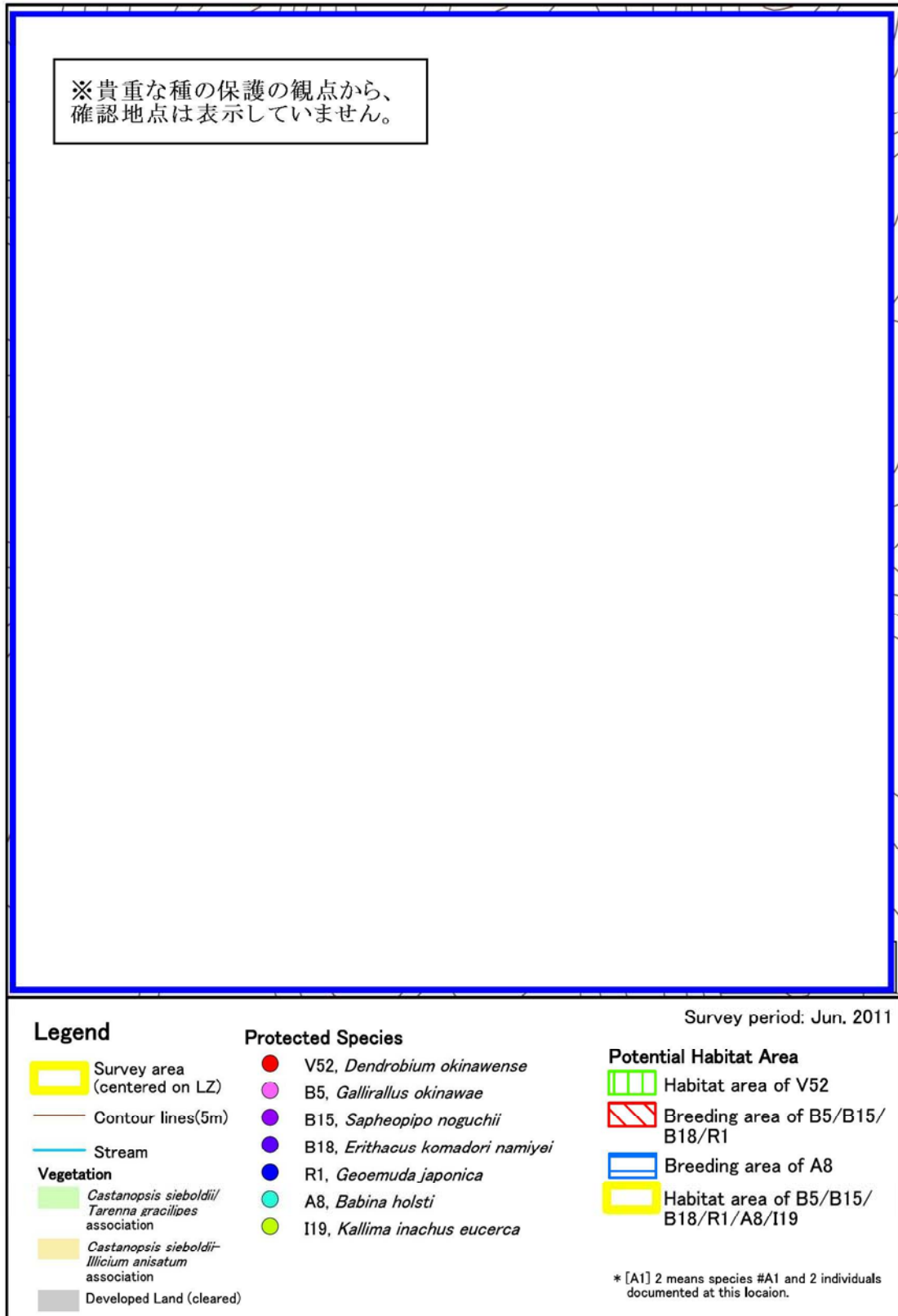


Figure 4-4 Protected Species Potential Habitat Area Near LZ Firebase Jones

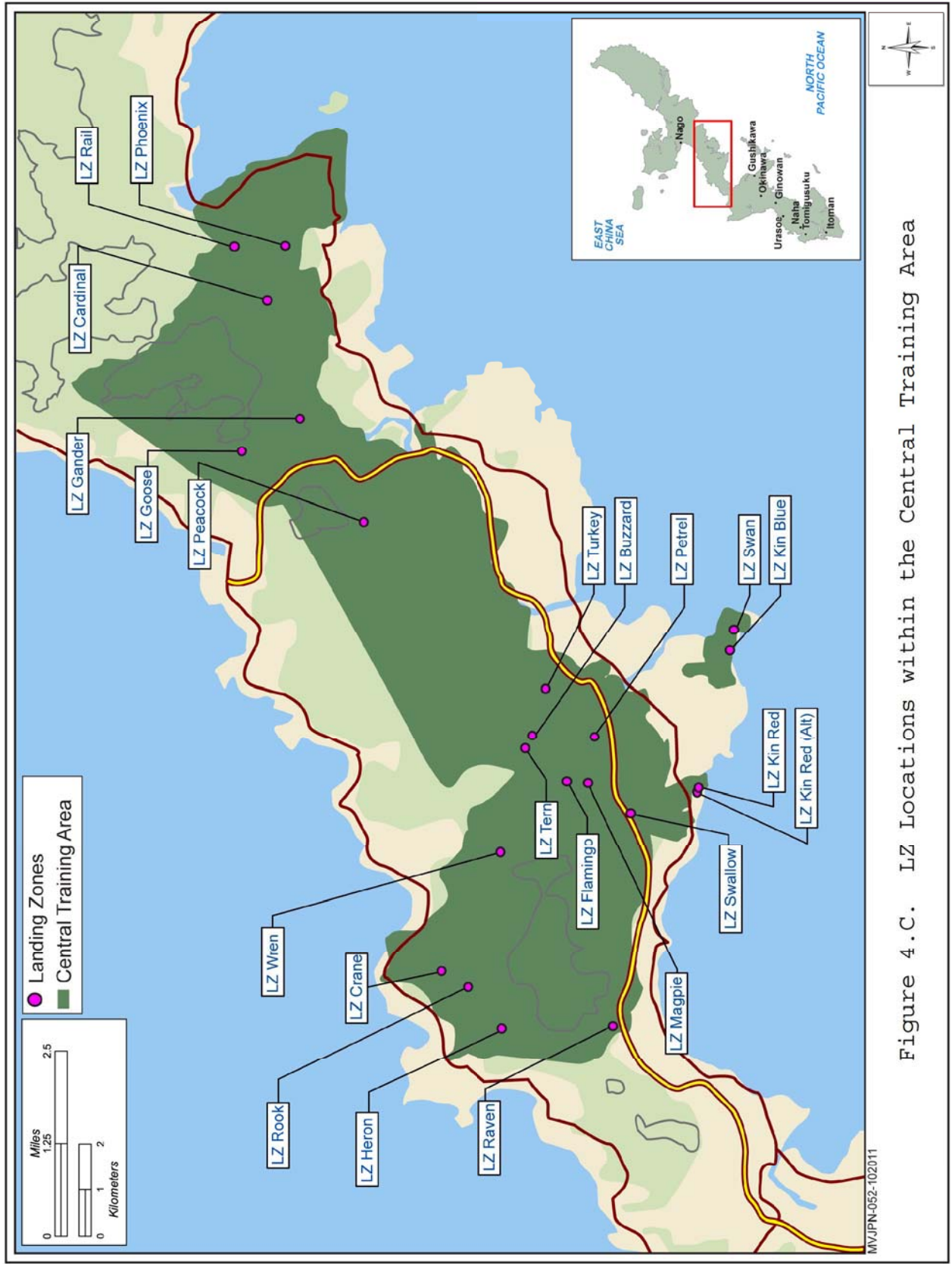


Figure 4.C. LZ Locations within the Central Training Area

CTA Protected Species Potential Habitat

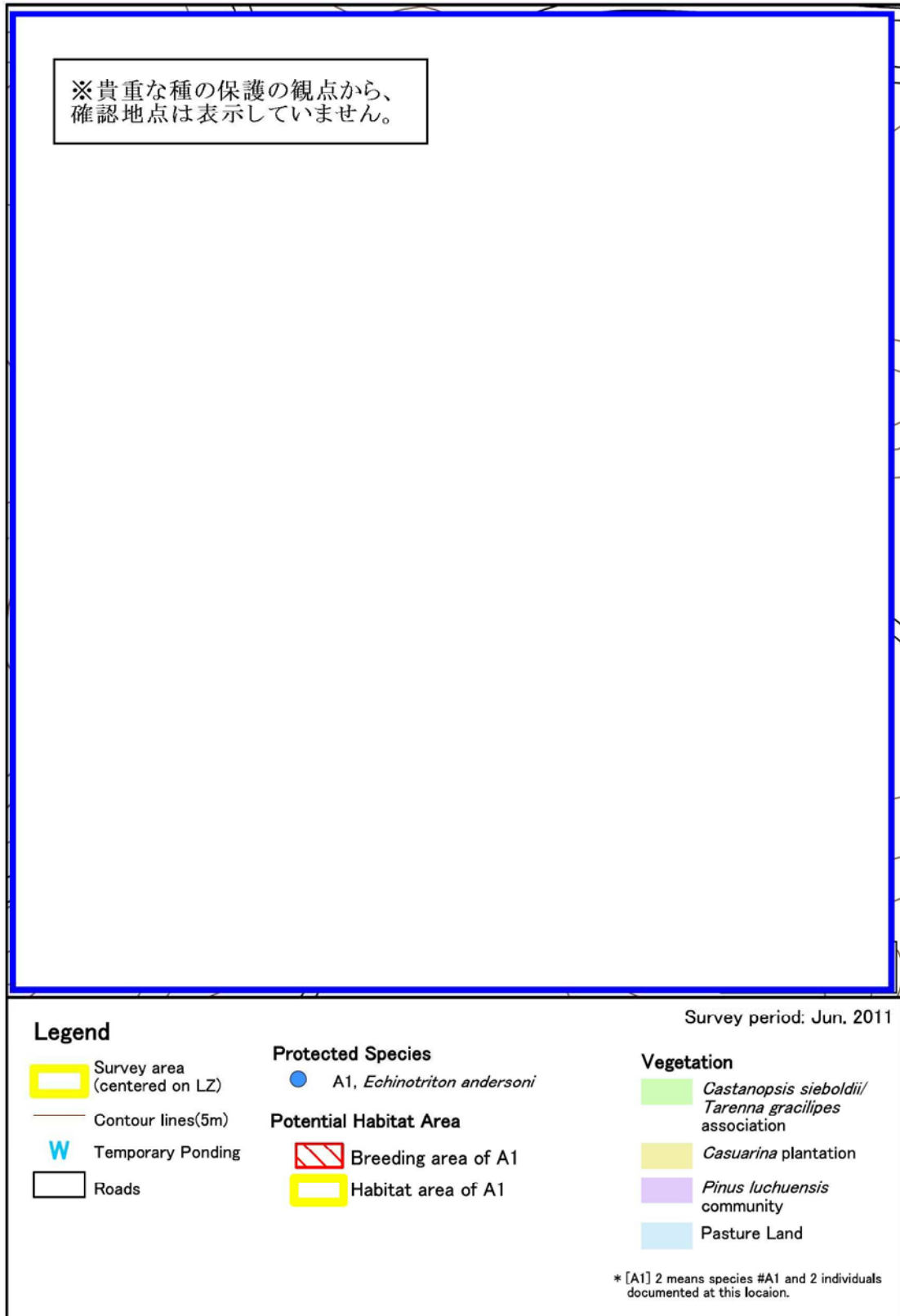


Figure 4-5 Protected Species Potential Habitat Area Near LZ Buzzard

CTA Protected Species Potential Habitat

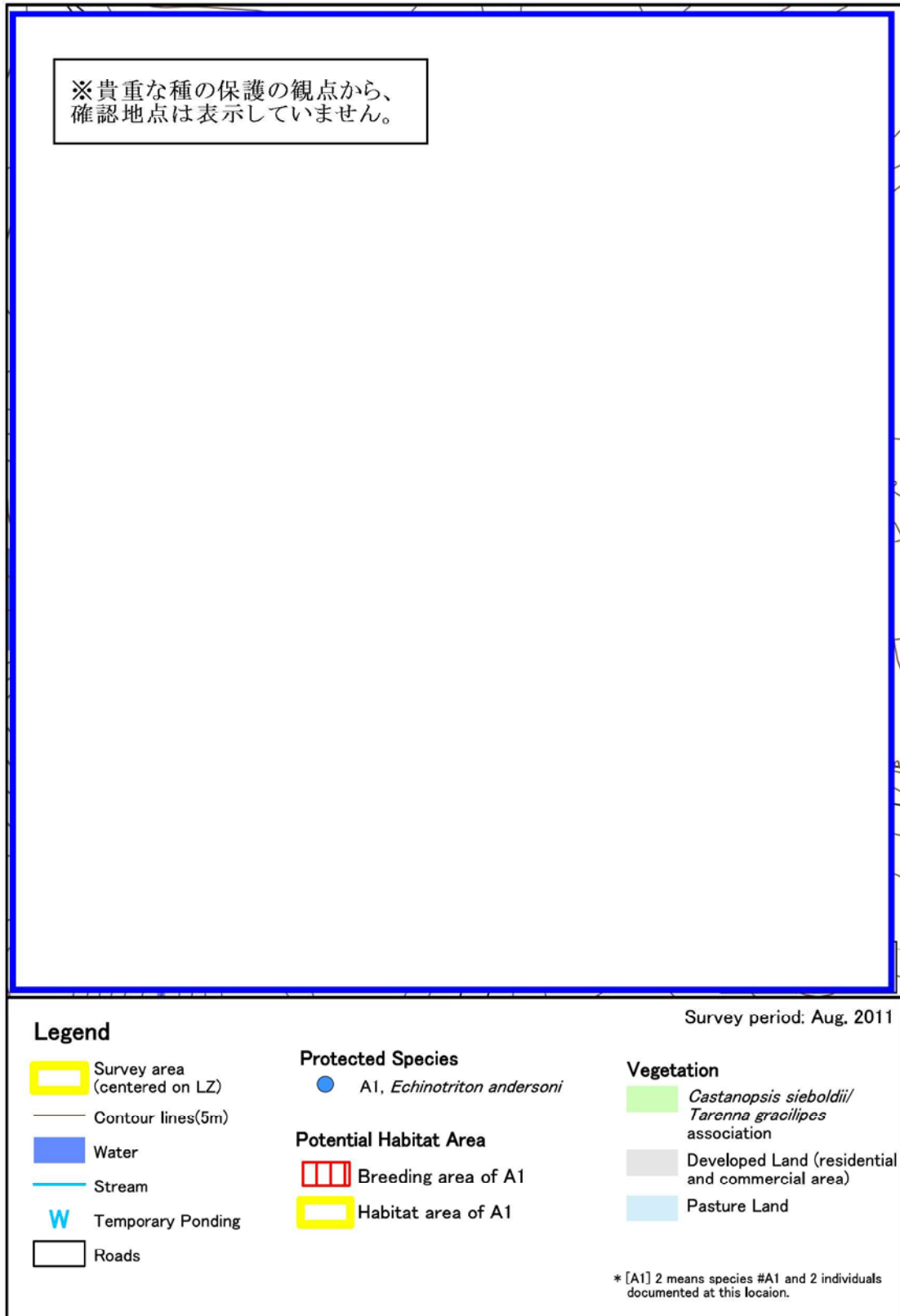


Figure 4-6 Protected Species Potential Habitat Area Near LZ Cardinal

CTA Protected Species Potential Habitat

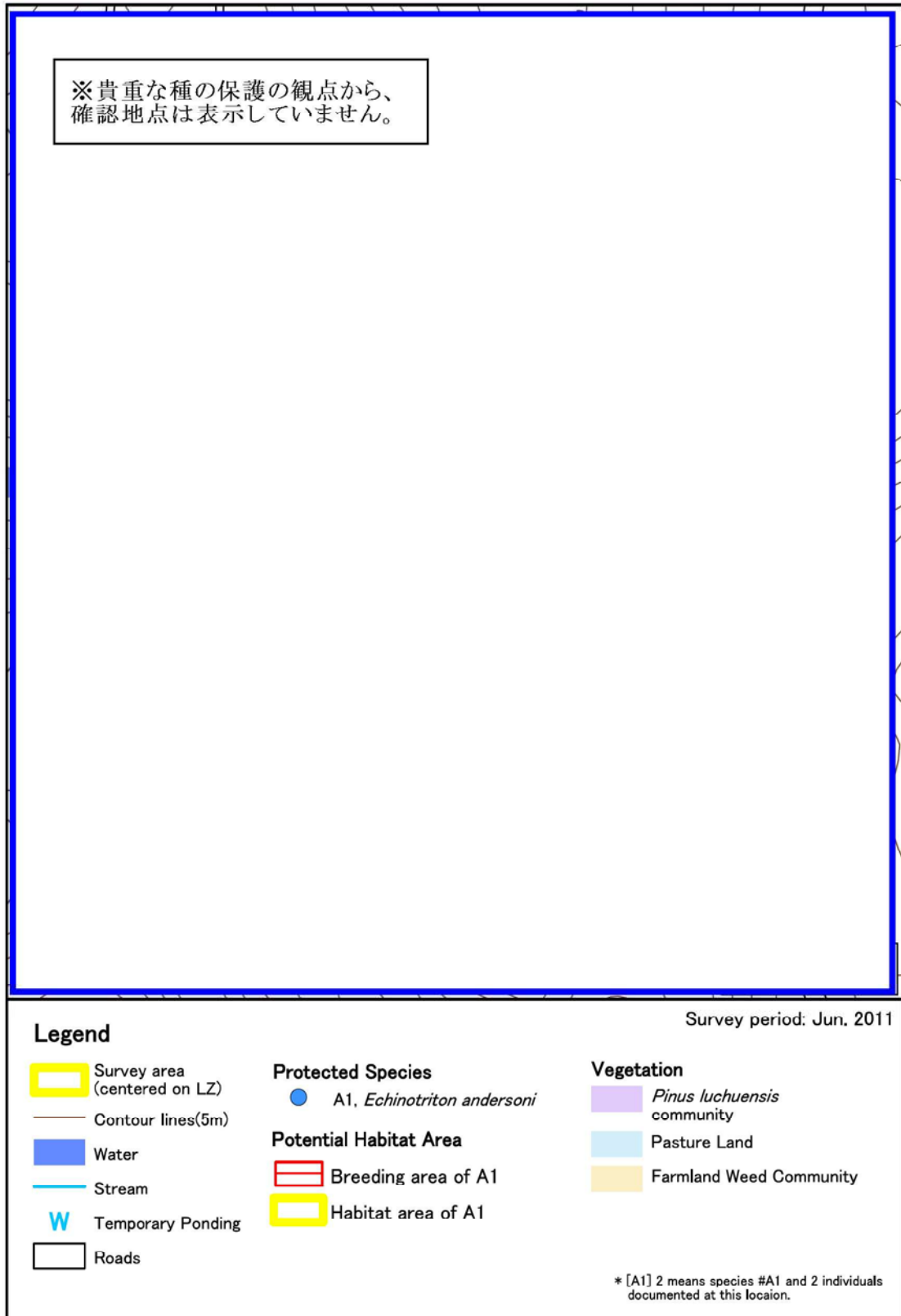


Figure 4-7 Protected Species Potential Habitat Area Near LZ Crane

CTA Protected Species Potential Habitat

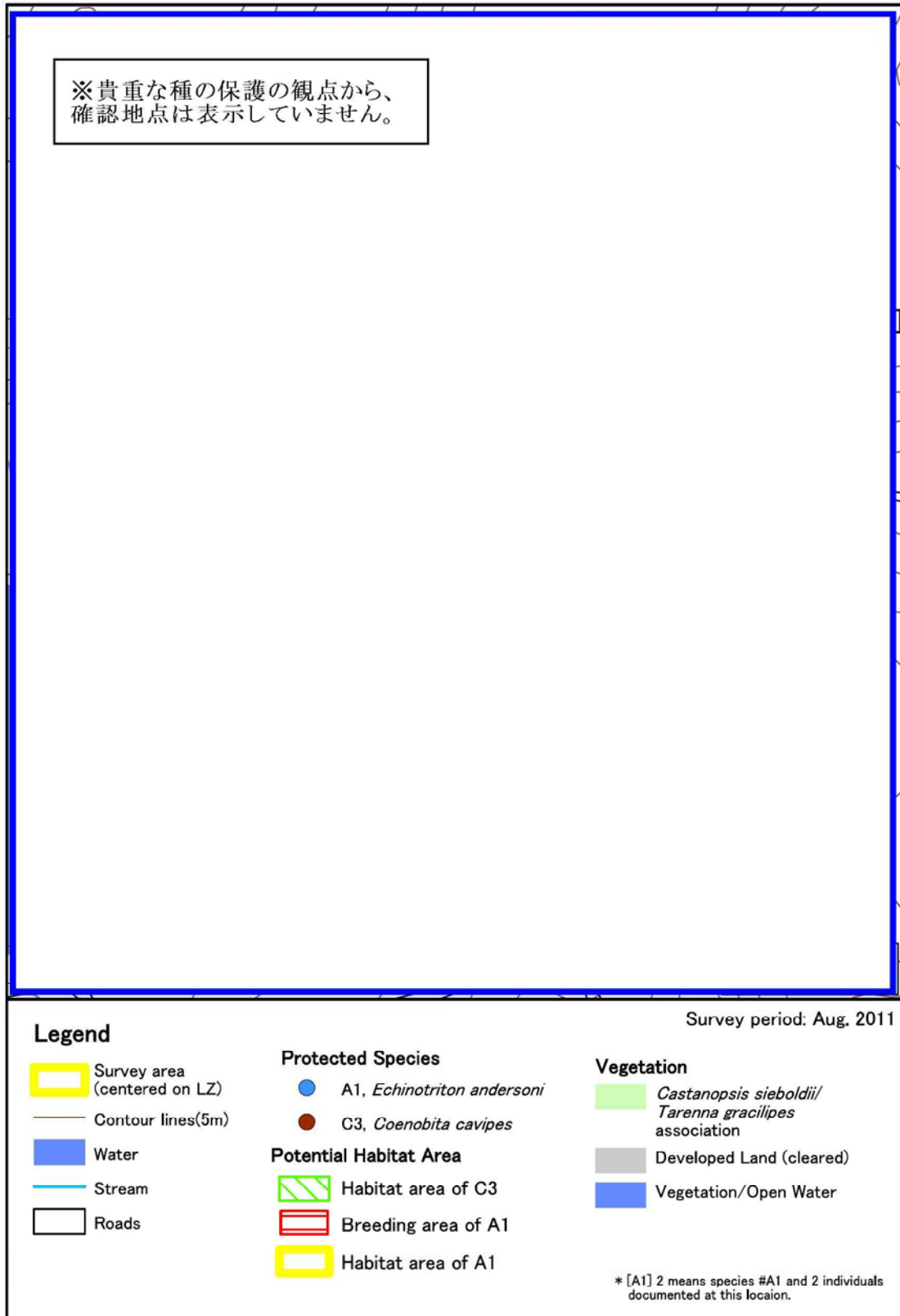


Figure 4-8 Protected Species Potential Habitat Area Near LZ Gander

CTA Protected Species Potential Habitat

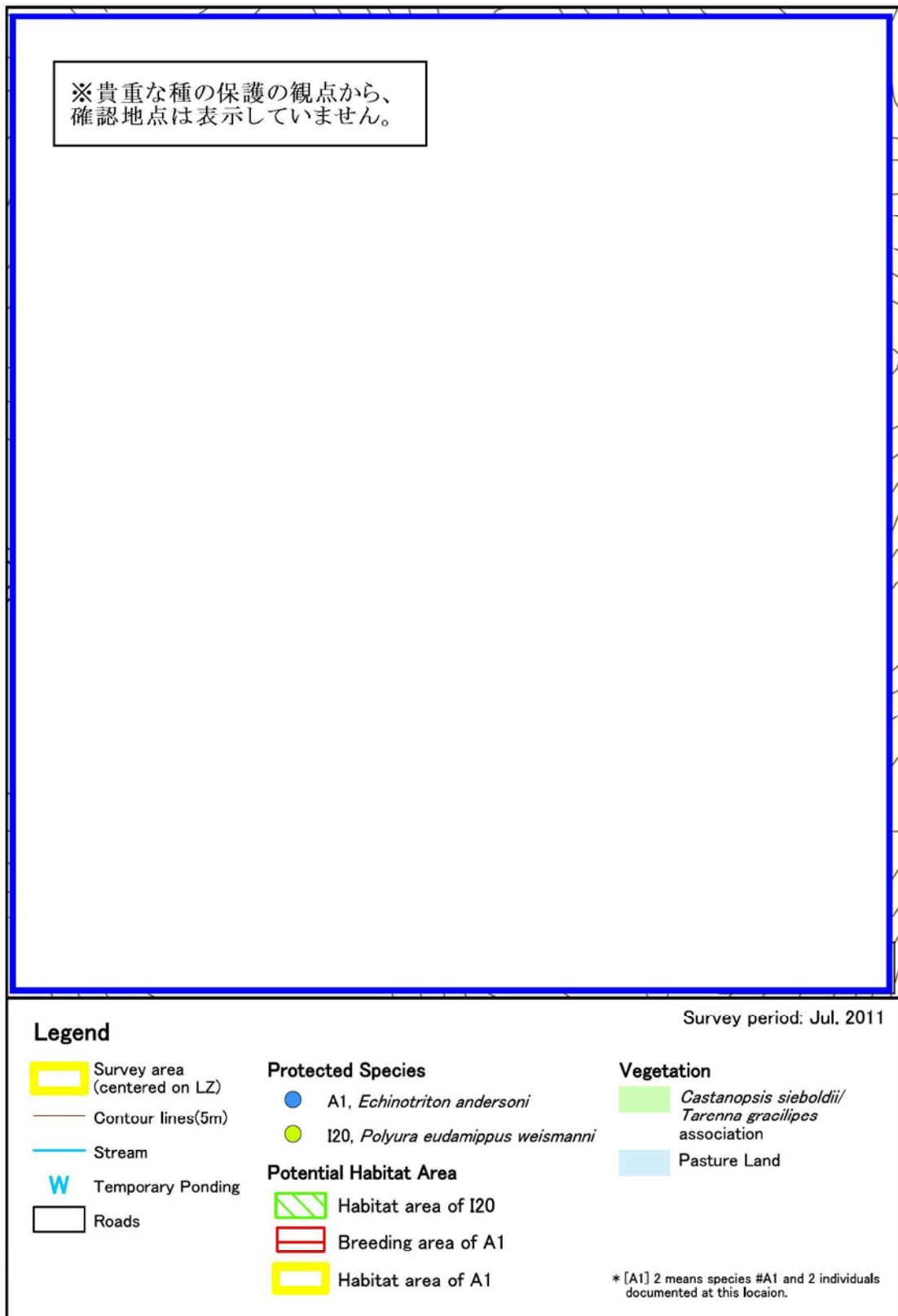


Figure 4-9 Protected Species Potential Habitat Area Near LZ Goose

CTA Protected Species Potential Habitat

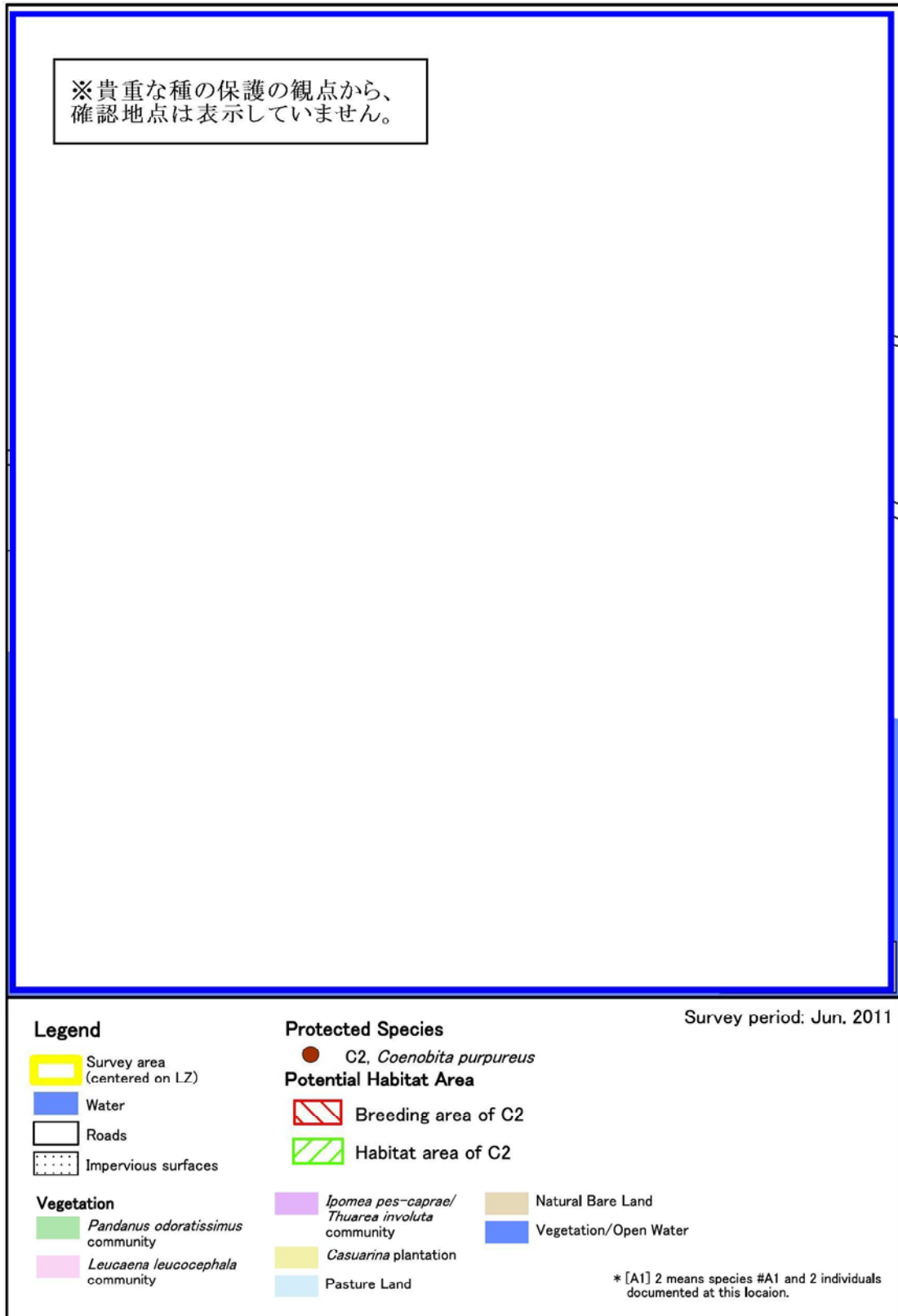


Figure 4-10 Protected Species Potential Habitat Area Near LZ Kin Blue

CTA Protected Species Potential Habitat

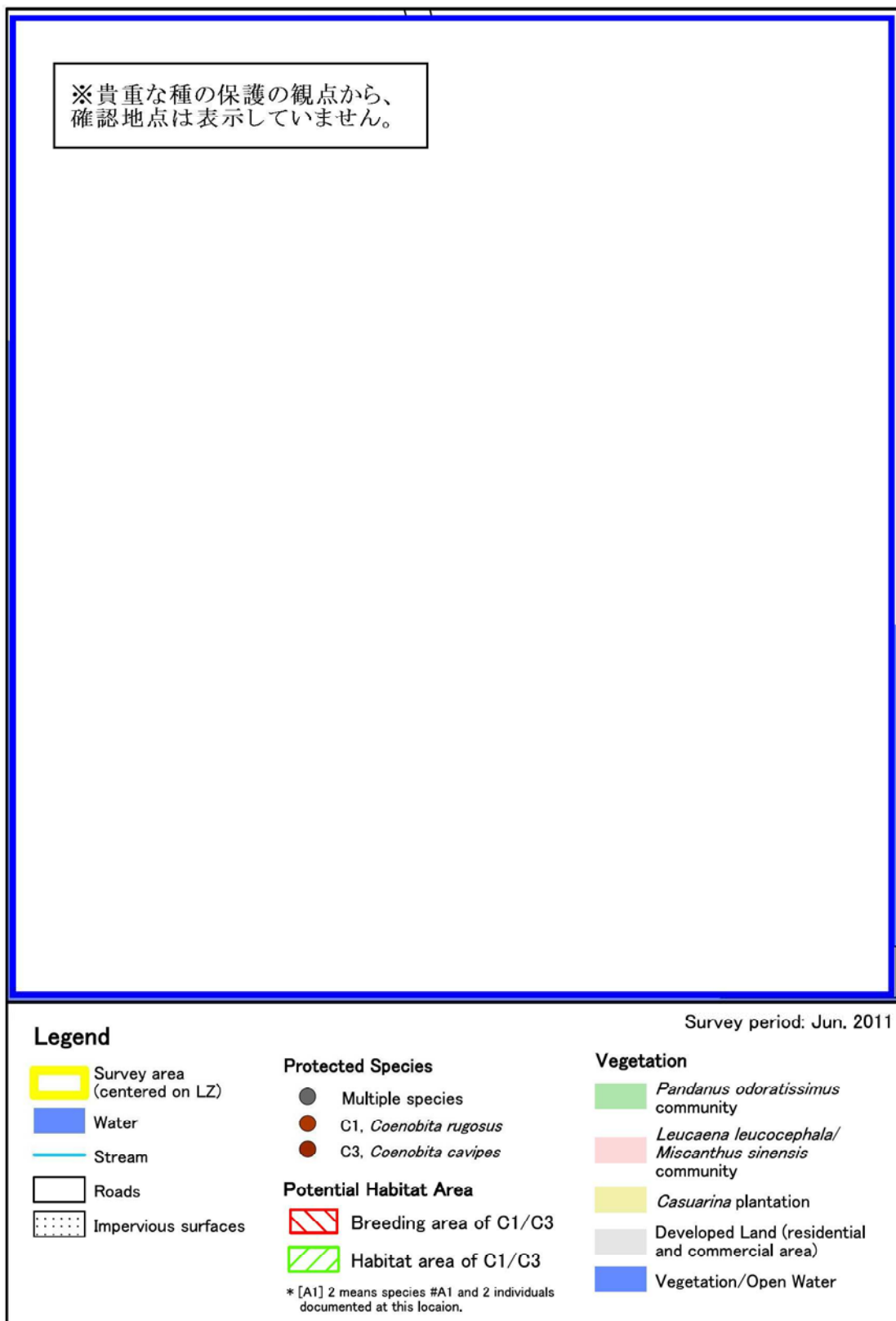


Figure 4-11 Protected Species Potential Habitat Area Near LZ Kin Red (Alt)

CTA Protected Species Potential Habitat

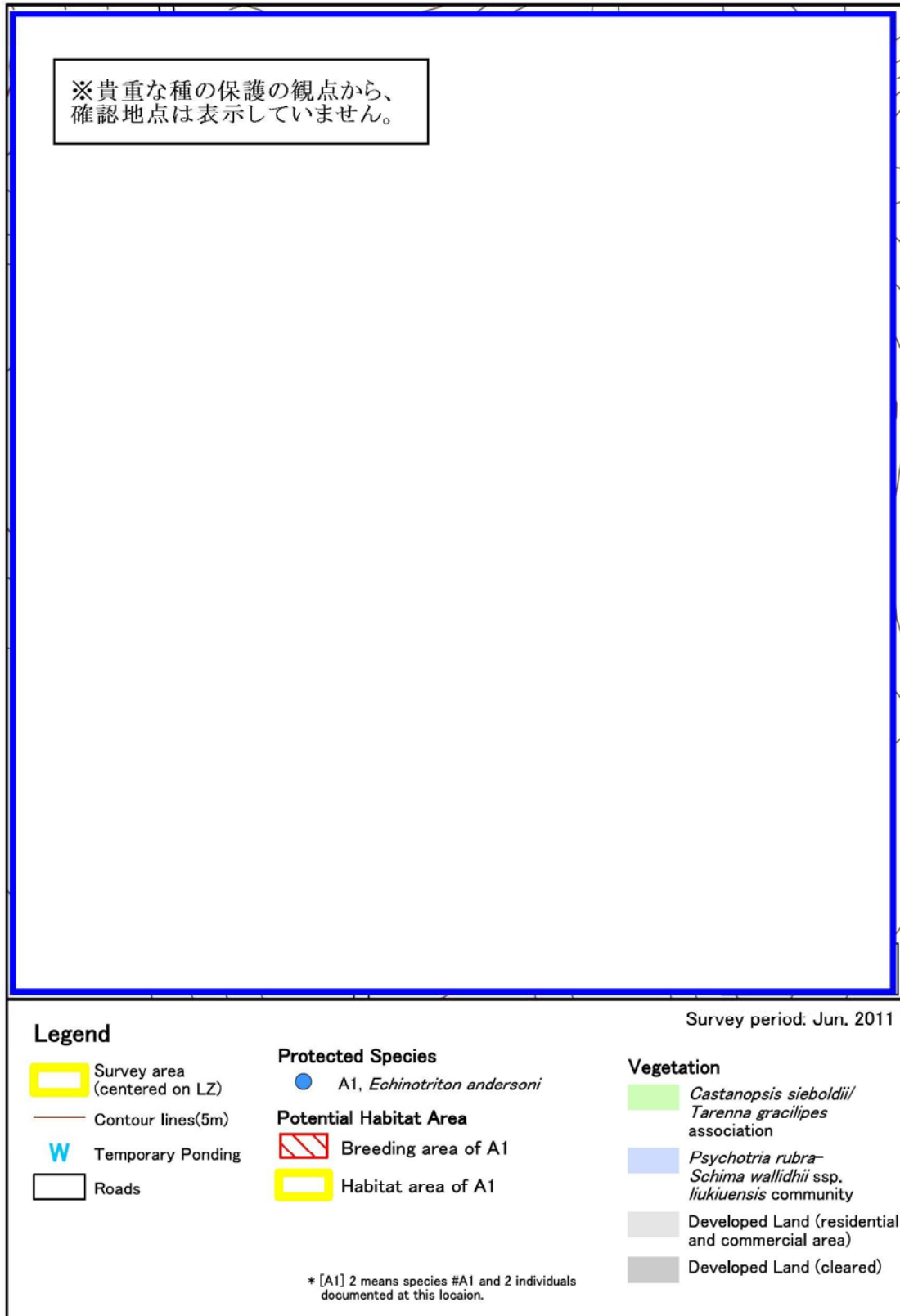


Figure 4-12 Protected Species Potential Habitat Area Near LZ Petrel

CTA Protected Species Potential Habitat

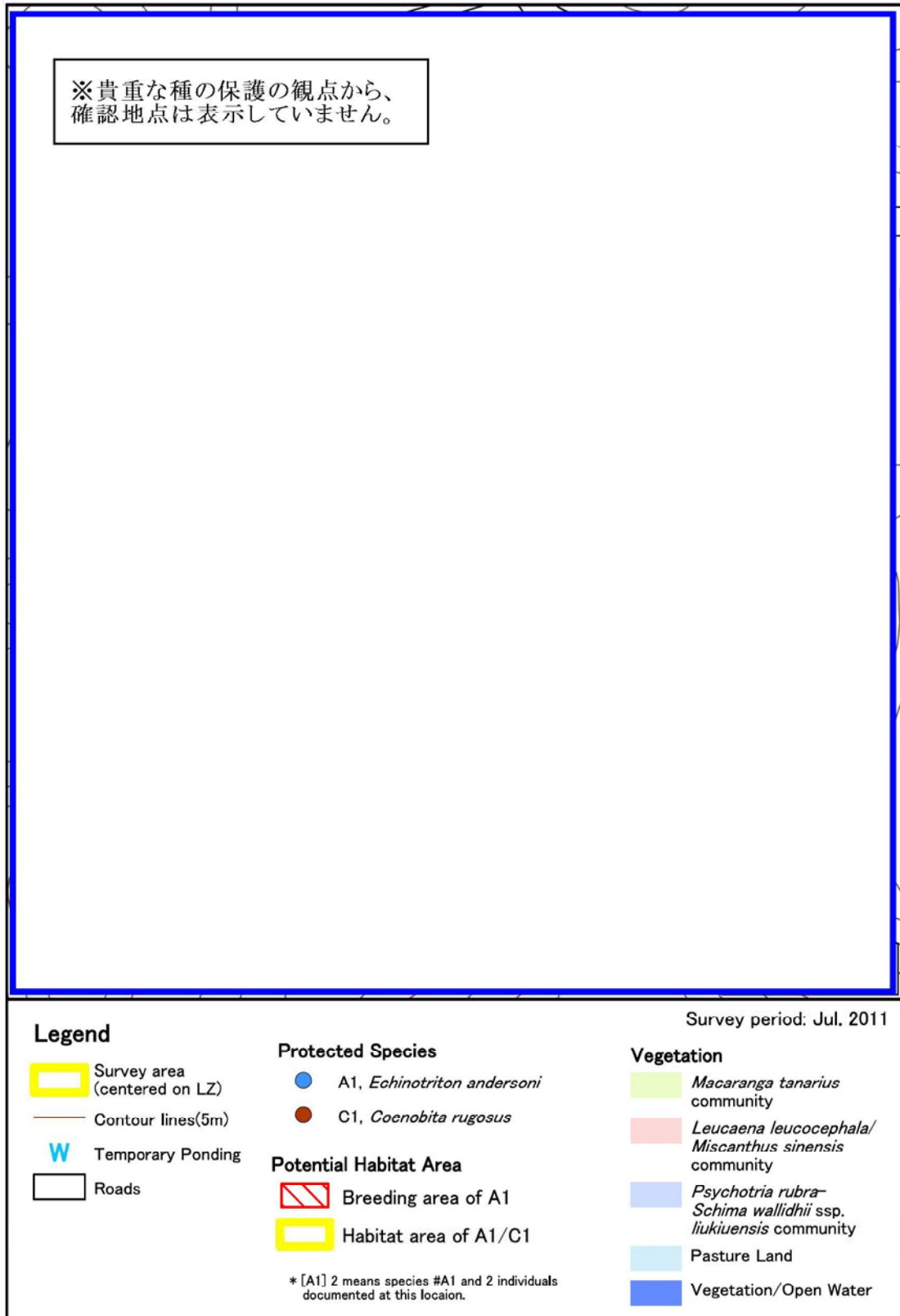


Figure 4-13 Protected Species Potential Habitat Area Near LZ Phoenix

CTA Protected Species Potential Habitat

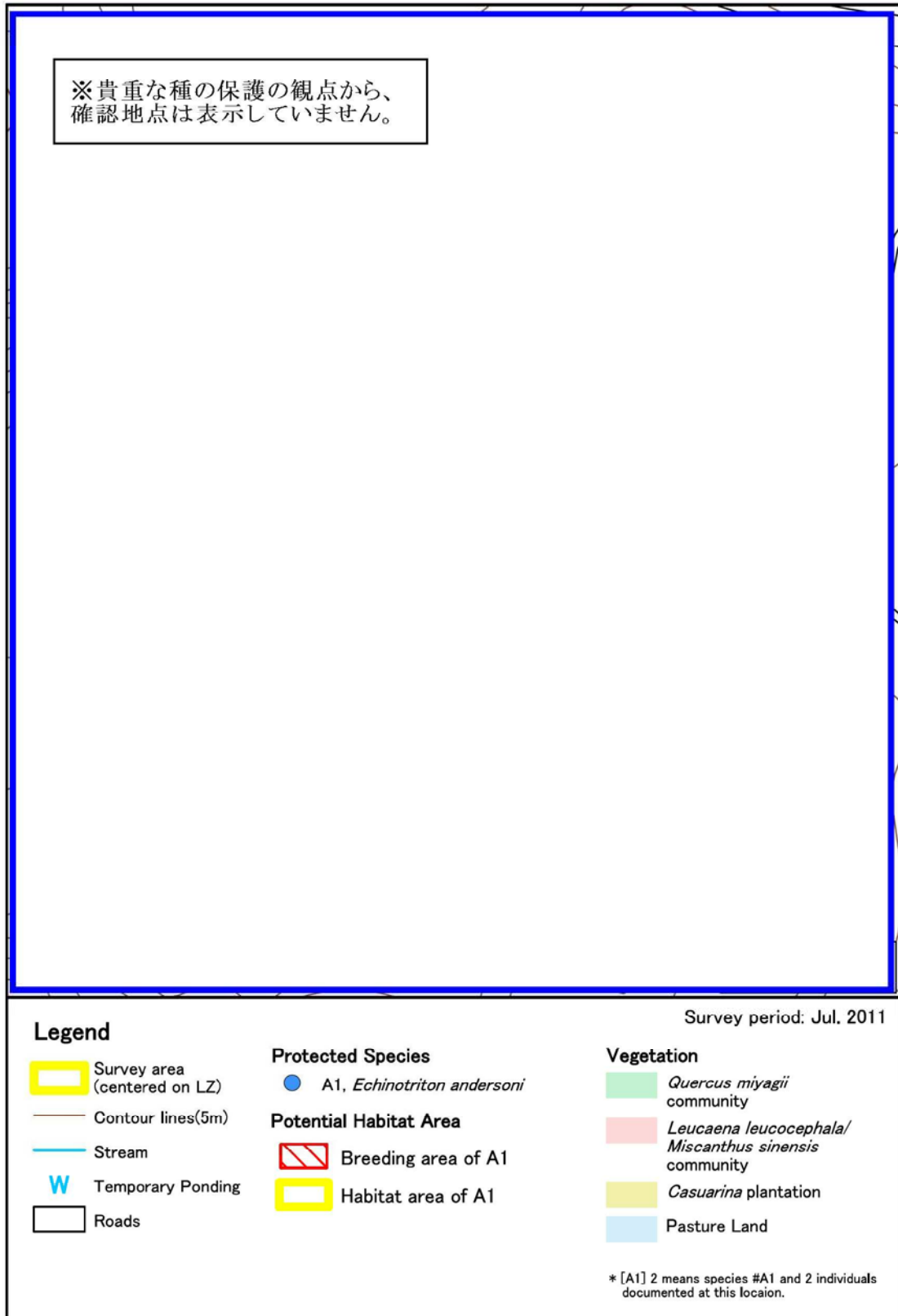


Figure 4-14 Protected Species Potential Habitat Area Near LZ Rail

CTA Protected Species Potential Habitat



Figure 4-15 Protected Species Potential Habitat Area Near LZ Raven

CTA Protected Species Potential Habitat

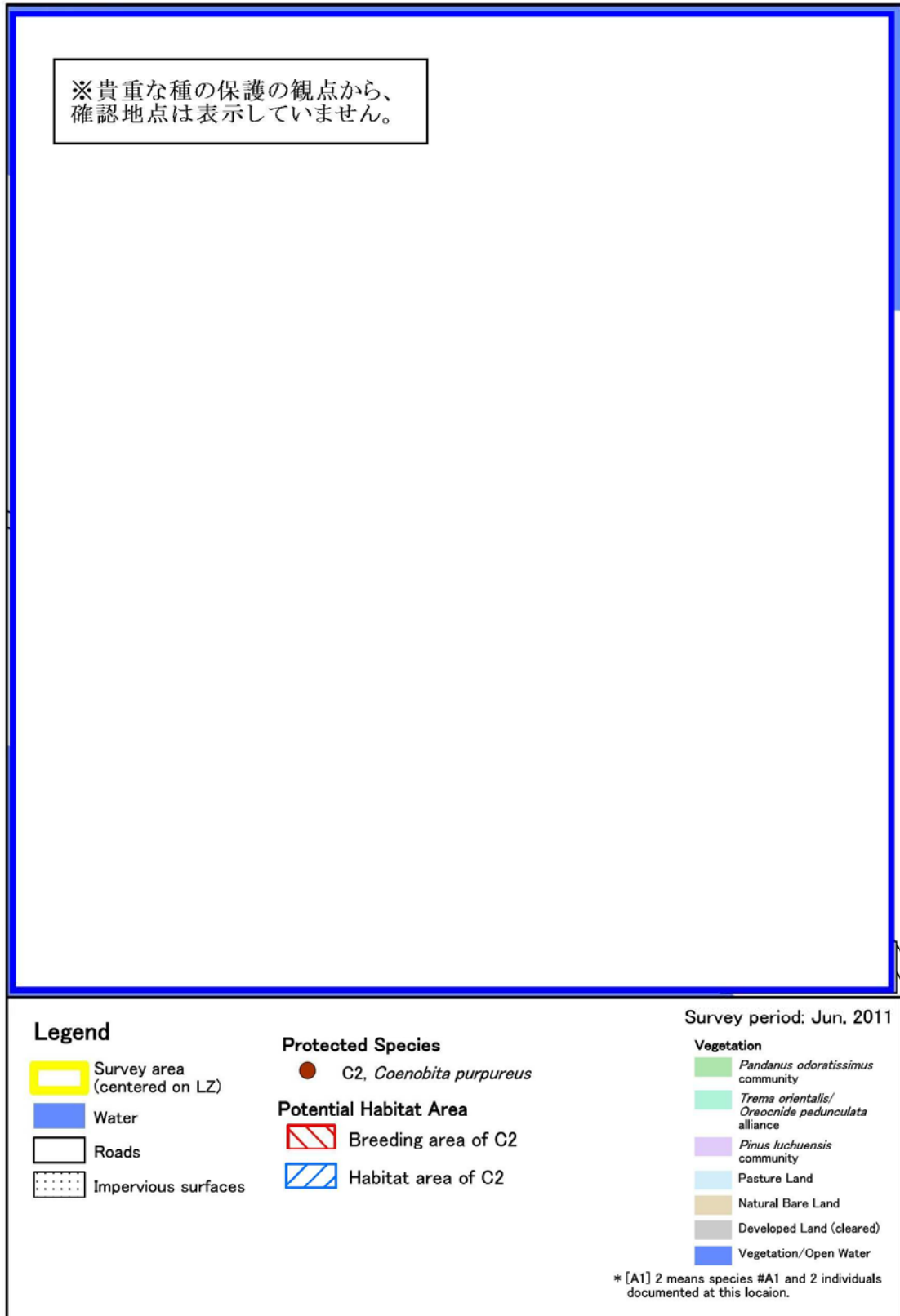


Figure 4-16 Protected Species Potential Habitat Area Near LZ Swan

CTA Protected Species Potential Habitat



Figure 4-17 Protected Species Potential Habitat Area Near LZ Tern

CTA Protected Species Potential Habitat

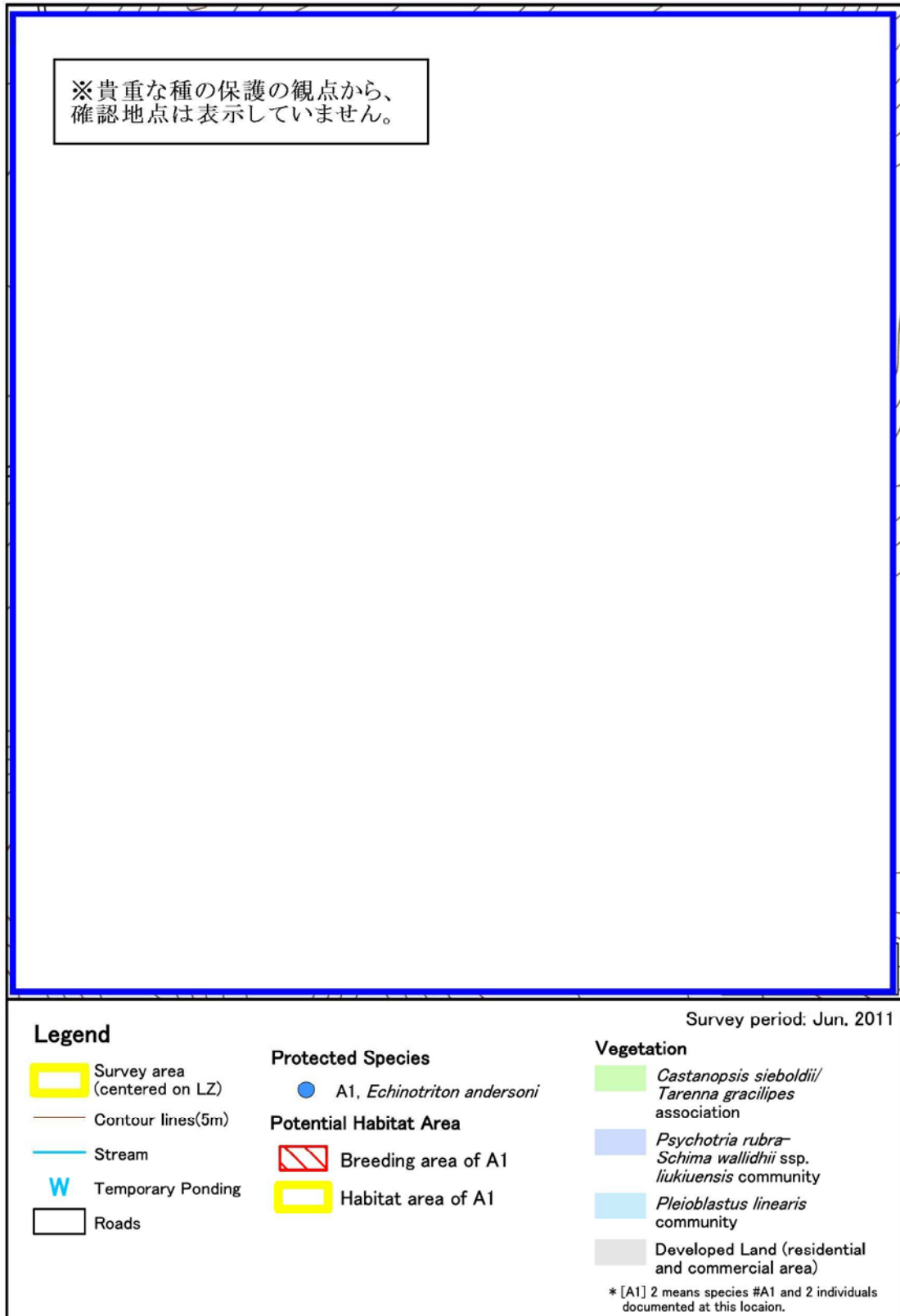
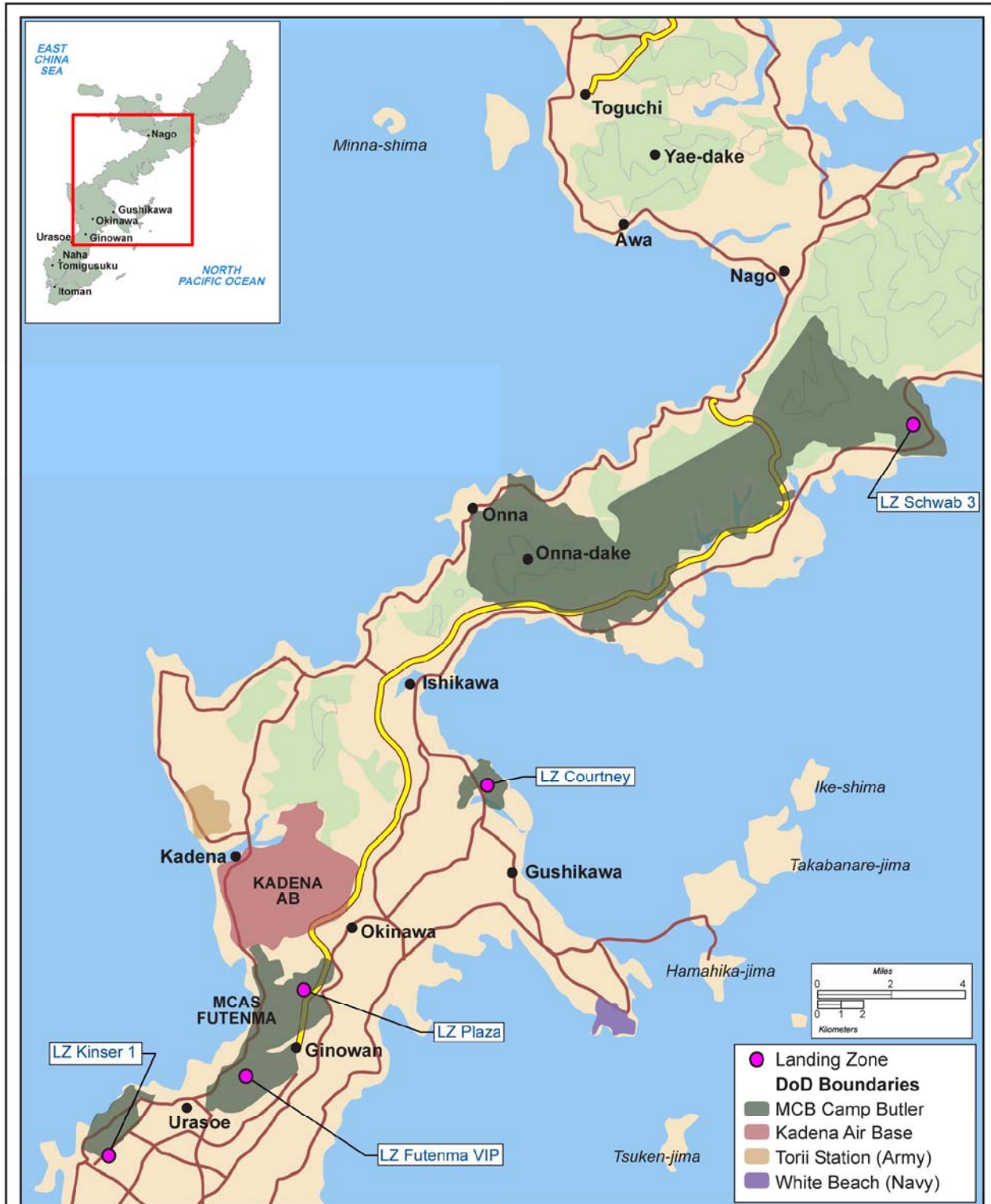


Figure 4-18 Protected Species Potential Habitat Area Near LZ Wren



MVJPN-053-102011

Figure 4.D. LZ Locations within the Administrative Area



Administrative Protected Species Potential Habitat

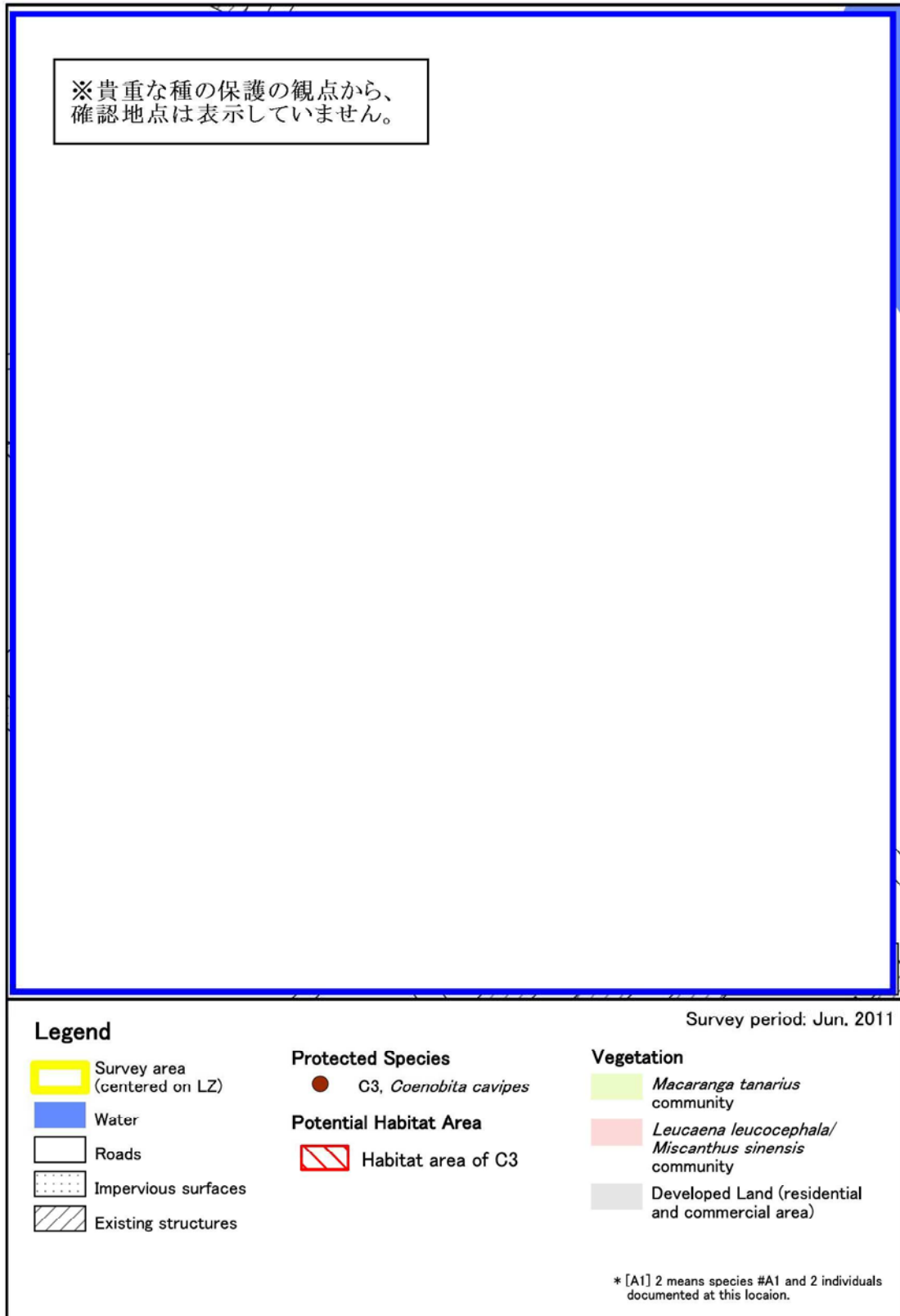


Figure 4-19 Protected Species Potential Habitat Area Near LZ Courtney

Administrative Protected Species Potential Habitat

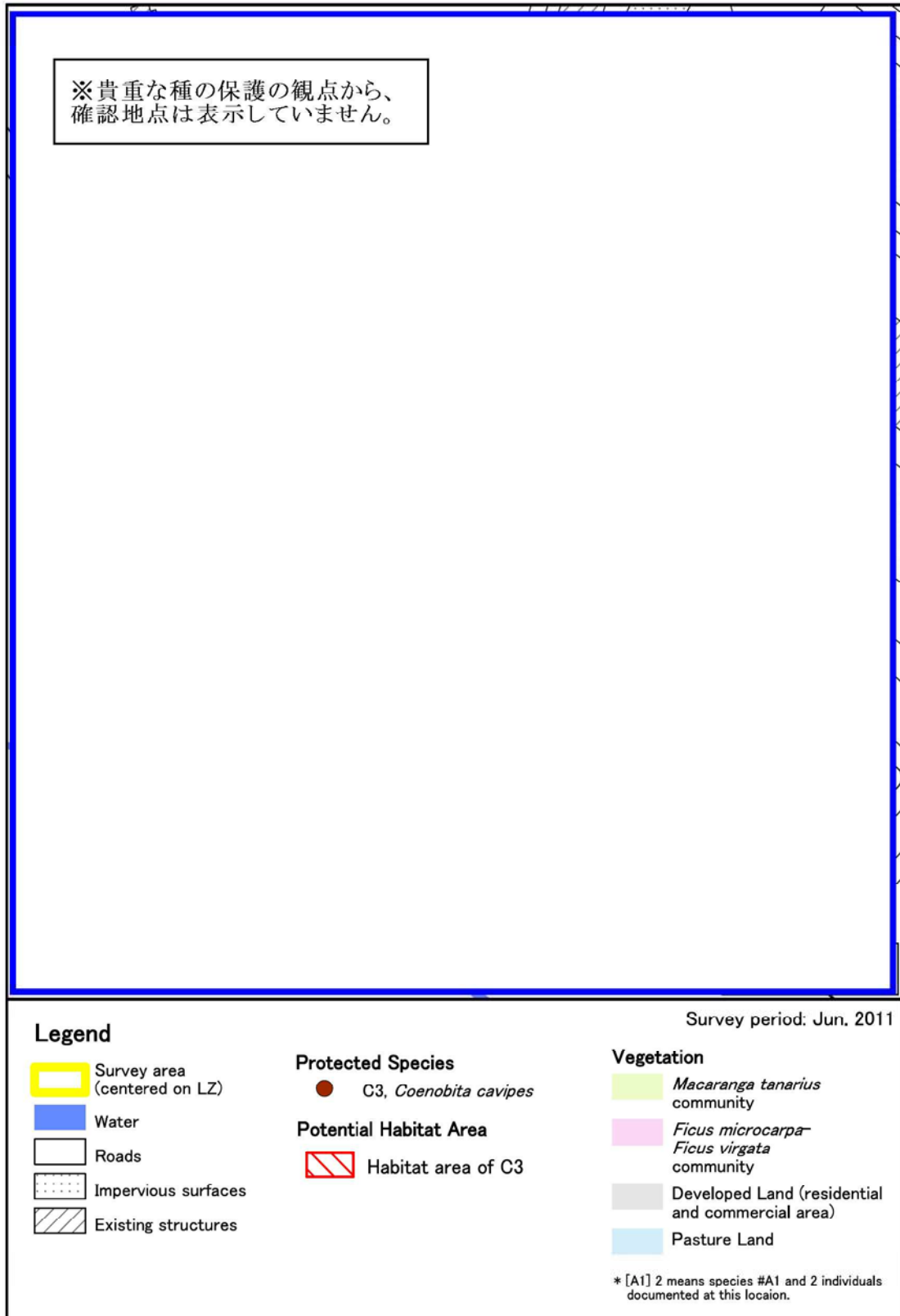


Figure 4-20 Protected Species Potential Habitat Area Near LZ Kinser 1

Administrative Protected Species Potential Habitat

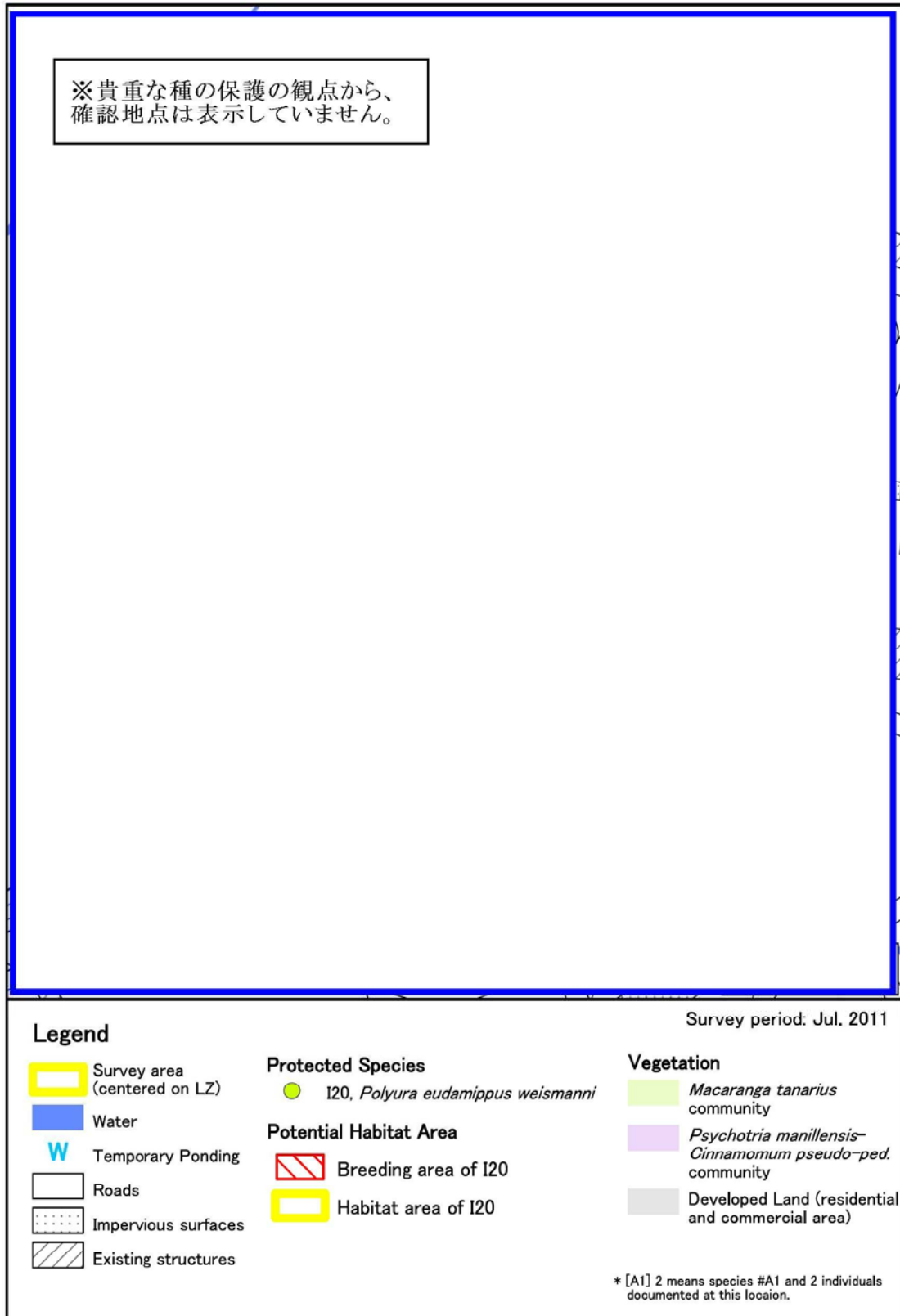


Figure 4-21 Protected Species Potential Habitat Area Near LZ Plaza

APPENDIX B

PHOTO ALBUMS FOR FLORA AND FAUNA




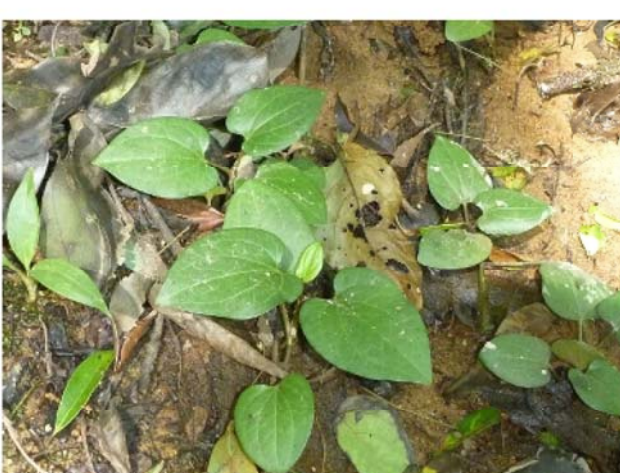

<i>Psilotum nudum</i> (L.) Beauv.
Japanese Name: Matubaran
JEGS: none
Red List: NT (GoJ)
Habitat: Forest
LZ Magpie
Date: 9 June 2011






<i>Selaginella biformis</i> A. Braun ex Kuhn
Japanese Name: Turukatahiba
JEGS: none
Red List: NT (GoJ), NT (Okinawa Pref.)
Habitat: Stream
LZ Crane
13 June 2011









<i>Schizaea dichotoma</i> (L.) Sm.
Japanese Name: Kanzasiwarabi
JEGS: none
Red List: EN (GoJ), EN (Okinawa Pref.)
Habitat: Forest
LZ Raven
8 June 2011




	<p><i>Microsorium rubidum</i> (Kunze) Copel.</p> <p>Japanese Name: T akaurabosi</p> <p>JEGS: none</p> <p>Red List: EN (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Turkey</p> <p style="text-align: right;">7 June 2011</p>
	<p><i>Saururus chinensis</i> (Lour.) Baill.</p> <p>Japanese Name: Hangeshou</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Turkey</p> <p style="text-align: right;">7 June 2011</p>
	<p><i>Persicaria dichotoma</i> (Blume) Masam.</p> <p>Japanese Name: Natunounagitukami</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Turkey</p> <p style="text-align: right;">7 June 2011</p>


	<p><i>Persicaria hastato-auriculata</i> (Makino) Nakai</p> <p>Japanese Name: Hosobanounagitukami</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Heron</p> <p style="text-align: right;">14 June 2011</p>
	<p><i>Sagina maxima</i> A. Gray</p> <p>Japanese Name: Hamatumekusa</p> <p>JEGS: none</p> <p>Red List: DD (Okinawa Pref.)</p> <p>Habitat: Coast, Road side</p> <p style="text-align: right;">LZ Magpie</p> <p style="text-align: right;">9 June 2011</p>
	<p><i>Sinomenium acutum</i> (Thunb.) Rehd. & Wils.</p> <p>Japanese Name: Ootuzurahuji</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ Futenma VIP</p> <p style="text-align: right;">11 July 2011</p>




	<p><i>Cassytha filiformis</i> L. var. <i>duripraticola</i> Hatusima</p> <p>Japanese Name: Kesunzuru</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Wildland</p> <p style="text-align: right;">LZ Rook</p> <p style="text-align: right;">6 June 2011</p>
	<p><i>Cinnamomum okinawense</i> Hatusima</p> <p>Japanese Name: Nikkei</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ Firebase Jones</p> <p style="text-align: right;">29 June 2011</p>
	<p><i>Hydrangea liukuensis</i> Nakai</p> <p>Japanese Name: Ryukyukonterigi</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest, Stream</p> <p style="text-align: right;">LZ Raven</p> <p style="text-align: right;">8 June 2011</p>

	<p><i>Photinia wrightiana</i> Maxim.</p> <p>Japanese Name: Simakanamemoti</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ Tern</p> <p style="text-align: right;">2 June 2011</p>
	<p><i>Rubus utchinensis</i> Koidz.</p> <p>Japanese Name: Okinawaurajiroitigo</p> <p>JEGS: none</p> <p>Red List: VU (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ 1</p> <p style="text-align: right;">28 June 2011</p>
	<p><i>Sapium japonicum</i> (S. & Z.) Pax & Hoffm.</p> <p>Japanese Name: Siraki</p> <p>JEGS: none</p> <p>Red List: VU (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ Firebase Jones</p> <p style="text-align: right;">30 June 2011</p>

	<p><i>Maytenus diversifolia</i> (Maxim.) Ding Hou</p> <p>Japanese Name: Hariturumasaki</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Coast</p> <p>LZ Kin Red Alternative</p> <p>17 June 2011</p>
	<p><i>Rhamnella franguloides</i> (Maxim.) Weberb. var. <i>inaequilatera</i> (Ohwi) Hatus.</p> <p>Japanese Name: Yaeyamanekonotiti</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Goose</p> <p>5 July 2011</p>
	<p><i>Rhamnus liukuensis</i> (Wils.) Koidz.</p> <p>Japanese Name: Ryukyukoumemodoki</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Plaza</p> <p>8 July 2011</p>



	<p><i>Eurya emarginata</i> (Thunb.) Makino var. <i>minutissima</i> (Hats.) Hatusima</p> <p>Japanese Name: Mamehisakaki</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Firebase Jones</p> <p>29 June 2011</p>
	<p><i>Bredia okinawensis</i> (Matsum.) H. L. Li</p> <p>Japanese Name: Kobanomiyanobotan</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Firebase Jones</p> <p>30 June 2011</p>
	<p><i>Haloragis chinensis</i> (Lour.) Merr.</p> <p>Japanese Name: Nagabaarinotougusa</p> <p>JEGS: none</p> <p>Red List: EN (GoJ), CR (Okinawa Pref.)</p> <p>Habitat: Wildland</p> <p>LZ Heron</p> <p>14 June 2011</p>

	<p><i>Rhododendron scabrum</i> G. Don</p> <p>Japanese Name: Keramatutuji</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Forest, Stream</p> <p>LZ Raven</p> <p>1 July 2011</p>
	<p><i>Diospyros egbert-walkeri</i> Kosterm.</p> <p>Japanese Name: Ryukyukokutan</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Kinser 1</p> <p>18 June 2011</p>
	<p><i>Symplocos confusa</i> Brand</p> <p>Japanese Name: Miyamasirobai</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest</p> <p>LZ 3</p> <p>27 June 2011</p>




	<p><i>Utricularia tenuicaulis</i> Miki</p> <p>Japanese Name: Inutanukimo</p> <p>JEGS: none</p> <p>Red List: NT (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Pond</p> <p>LZ Turkey</p> <p>7 June 2011</p>
	<p><i>Utricularia exoleta</i> R. Br.</p> <p>Japanese Name: Mikawatanukimo</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Pond</p> <p>LZ Turkey</p> <p>7 June 2011</p>
	<p><i>Sinoadina racemosa</i> (S. & Z.) Ridsd.</p> <p>Japanese Name: Hetukanigaki</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Goose</p> <p>5 July 2011</p>

	<p><i>Lobelia alsinoides</i> Lam.</p> <p>Japanese Name: Tatimizokakusi</p> <p>JEGS: none</p> <p>Red List: CR (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p>LZ Flamingo</p> <p>11 June 2011</p>
	<p><i>Blyxa aubertii</i> L. C. Rich.</p> <p>Japanese Name: Marumisubuta</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p>LZ Flamingo</p> <p>11 June 2011</p>
	<p><i>Ottelia alismoides</i> (L.) Pers.</p> <p>Japanese Name: Oomizuoobako</p> <p>JEGS: none</p> <p>Red List: VU (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p>LZ Turkey</p> <p>7 June 2011</p>

	<p><i>Sciaphila japonica</i> Makino</p> <p>Japanese Name: Hongouso</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ Cardinal</p> <p style="text-align: right;">17 August 2011</p>
	<p><i>Sciaphila tosaensis</i> Makino</p> <p>Japanese Name: Uematuso</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ Buzzard</p> <p style="text-align: right;">3 June 2011</p>
	<p><i>Aristida takeoi</i> Ohwi</p> <p>Japanese Name: Oomatubashiba</p> <p>JEGS: none</p> <p>Red List: EN (GoJ)</p> <p>Habitat: Wildland</p> <p style="text-align: right;">LZ Heron</p> <p style="text-align: right;">14 June 2011</p>




	<p><i>Leersia hexandra</i> (Doell.) Sw.</p> <p>Japanese Name: Taiwanasikaki</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Turkey</p> <p style="text-align: right;">7 June 2011</p>
	<p><i>Carex phacota</i> Spreng.</p> <p>Japanese Name: Aogouso</p> <p>JEGS: none</p> <p>Red List: EN (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Tern</p> <p style="text-align: right;">2 June 2011</p>
	<p><i>Carex sacrosancta</i> Honda var. <i>tamakii</i> (T. Koyama) T. Koyama</p> <p>Japanese Name: Okinawahimenakiri</p> <p>JEGS: none</p> <p>Red List: NT (GoJ), NT (Okinawa Pref.)</p> <p>Habitat: Stream</p> <p style="text-align: right;">LZ Swallow</p> <p style="text-align: right;">1 July 2011</p>

	<p><i>Eleocharis fistulosa</i> (Poir.) Link</p> <p>Japanese Name: Misumii</p> <p>JEGS: none</p> <p>Red List: EN (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p>LZ Turkey</p> <p>7 June 2011</p>
	<p><i>Eleocharis geniculata</i> (L.) Rocm. & Schult.</p> <p>Japanese Name: Tamaharii</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p>LZ Turkey</p> <p>7 June 2011</p>
	<p><i>Eleocharis ochrostachys</i> Steud.</p> <p>Japanese Name: Tokusai</p> <p>JEGS: none</p> <p>Red List: VU (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p>LZ Heron</p> <p>14 June 2011</p>

	<p><i>Eleocharis tetraquetra</i> Nees</p> <p>Japanese Name: Masikakui</p> <p>JEGS: none</p> <p>Red List: CR (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Tern</p> <p style="text-align: right;">2 June 2011</p>
	<p><i>Fimbristylis ovata</i> (Burm. f.) Kern</p> <p>Japanese Name: Yaritentuki</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Wildland</p> <p style="text-align: right;">LZ VIP Helipad</p> <p style="text-align: right;">20 June 2011</p>
	<p><i>Rhynchospora brownii</i> Römer & Schult.</p> <p>Japanese Name: Toranohanahige</p> <p>JEGS: none</p> <p>Red List: VU (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Heron</p> <p style="text-align: right;">14 June 2011</p>

	<p><i>Eriocaulon nigrum</i> Lecomte var. <i>suishaense</i> (Hayata) Hatusima & T. Koyama</p> <p>Japanese Name: Suishahosikusa</p> <p>JEGS: none</p> <p>Red List: CR (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Heron</p> <p style="text-align: right;">14 June 2011</p>
	<p><i>Philydrum lanuginosum</i> Banks & Sol. ex J. Gaertn.</p> <p>Japanese Name: Tanukiayame</p> <p>JEGS: none</p> <p>Red List: VU (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Flamingo</p> <p style="text-align: right;">11 June 2011</p>
	<p><i>Juncus effusus</i> L. var. <i>decipiens</i> Buchenau</p> <p>Japanese Name: Igusa</p> <p>JEGS: none</p> <p>Red List: EN (Okinawa Pref.)</p> <p>Habitat: Swamp</p> <p style="text-align: right;">LZ Flamingo</p> <p style="text-align: right;">11 June 2011</p>

	<i>Juncus leschenaultii</i> J. Gay ex Laharpe
	Japanese Name: Kougaizekisho
	JEGS: none
	Red List: VU (Okinawa Pref.)
	Habitat: Swamp
	LZ Flamingo
	11 June 2011
	<i>Burmattia championii</i> Thw.
	Japanese Name: Hinanoshakujyo
	JEGS: none
	Red List: CR (Okinawa Pref.)
	Habitat: Forest
	LZ Raven
	8 June 2011
	<i>Calanthe lyroglossa</i> Reichb. f.
	Japanese Name: Rengyouebine
	JEGS: none
	Red List: VU (GoJ), VU (Okinawa Pref.)
	Habitat: Forest
	LZ Firebase Jones
	29 June 2011

	<p><i>Calanthe masuca</i> (D. Don) Lindley</p> <p>Japanese Name: Onagaebine</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Firebase Jones</p> <p>30 June 2011</p>
	<p><i>Calanthe triplicata</i> (Willem.) Ames</p> <p>Japanese Name: Tururan</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Goose</p> <p>5 July 2011</p>
	<p><i>Calanthe gracilis</i> Lindl. var. <i>venusta</i> (Schltr.) F. Mack.</p> <p>Japanese Name: Tokusaran</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest</p> <p>LZ 3</p> <p>27 June 2011</p>



<i>Dendrobium okinawense</i> Hatusima & Ida
Japanese Name: Okinawasekkoku
JEGS: Endangered Species
Red List: EN (GoJ), CR (Okinawa Pref.)
Habitat: Forest
LZ Firebase Jones
29 June 2011



<i>Didymoplexis pallens</i> Griff.
Japanese Name: Yuureiran
JEGS: none
Red List: NT (GoJ), VU (Okinawa Pref.)
Habitat: Forest
LZ Raven
8 June 2011



<i>Eulophia graminea</i> Lindl.
Japanese Name: Edauchiyagara
JEGS: none
Red List: VU (Okinawa Pref)
Habitat: Wildland
LZ Buzzard
9 June 2011






<i>Eulophia zollingeri</i> (Reichb. f.) J. J. Sm.
Japanese Name: Imoneyagara
JEGS: none
Red List: EN (GoJ), VU(Okinawa Pref.)
Habitat: Forest
LZ Firebase Jones
30 June 2011



<i>Galeola altissima</i> (Bl.) Reichb. f.
Japanese Name: Takatururan
JEGS: none
Red List: CR (GoJ), VU (Okinawa Pref.)
Habitat: Forest
LZ Tern
2 June 2011



<i>Gastrochilus japonicus</i> (Makino) Schltr.
Japanese Name: Kasinokiran
JEGS: none
Red List: VU (GoJ), VU (Okinawa Pref.)
Habitat: Forest
LZ Firebase Jones
30 June 2011

	<p><i>Geodorum densiflorum</i> (Lam.) Schltr.</p> <p>Japanese Name: Tosakameotoran</p> <p>JEGS: none</p> <p>Red List: EN (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Wildland</p> <p>LZ Raven</p> <p>8 June 2011</p>
	<p><i>Habenaria dentata</i> (Sw.) Schltr.</p> <p>Japanese Name: Daisagiso</p> <p>JEGS: none</p> <p>Red List: EN (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Wildland</p> <p>LZ Raven</p> <p>8 June 2011</p>
	<p><i>Habenaria formosana</i> Schltr.</p> <p>Japanese Name: Takasagosagiso</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Wildland</p> <p>LZ 3</p> <p>27 June 2011</p>



Habenaria longidenticulata Hayata

Japanese Name: Ryukyusagiso

JEGS: none

Red List: EN (GoJ), VU (Okinawa Pref.)

Habitat: Forest

LZ Gander

16 August 2011



Lecanorchis flavicans Fukuy. var. *acutiloba*
T.Hashim.

Japanese Name: Sirahigemuyouran

JEGS: none

Red List: NT (GoJ)

Habitat: Forest

LZ 1

28 June 2011



Lecanorchis triloba J. J. Sm.

Japanese Name: Okinawamuyouran




JEGS: none

Red List: NT (GoJ), VU (Okinawa Pref.)

Habitat: Forest

LZ 3

27 June 2011

	<p><i>Luisia teres</i> (Thunb.) Bl.</p> <p>Japanese Name: Bouran</p> <p>JEGS: none</p> <p>Red List: NT (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Firebase Jones</p> <p>29 June 2011</p>
	<p><i>Malaxis latifolia</i> J. E. Sm.</p> <p>Japanese Name: Hozakihimeran</p> <p>JEGS: none</p> <p>Red List: CR (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ 1</p> <p>28 June 2011</p>
	<p><i>Malaxis kandae</i> Hashimoto</p> <p>Japanese Name: Kandahimeran</p> <p>JEGS: none</p> <p>Red List: EN (GoJ), CR (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Turkey</p> <p>7 June 2011</p>



Phaius tankervilleae (Banks ex L'Hérit.) Bl.

Japanese Name: Kakutyouran

JEGS: none

Red List: VU (GoJ), EN (Okinawa Pref.)

Habitat: Forest

LZ Turkey

7 June 2011



Spathoglottis plicata Bl.

Japanese Name: Koutousiran

JEGS: none

Red List: VU (GoJ), VU (Okinawa Pref.)

Habitat: Wildland

LZ Crane

13 June 2011



Zeuxine agyokuana Fukuyama

Japanese Name: Kagerouran

JEGS: none

Red List: NT (GoJ), VU (Okinawa Pref.)

Habitat: Forest

LZ Firebase Jones

30 June 2011



Hildenbrandia rivularis

Japanese Name: Tansuibenimadara

JEGS: none

Red List: NT (GoJ), NT (Okinawa Pref.)

Habitat: Stream, River

LZ Gander

16 August 2011



<i>Crocidura watasei</i>
Japanese Name: Watasejinezumi
English Name: Watases Shrew
JEGS: none
Red List: NT (GoJ), NT (Okinawa Pref.)
Habitat: Forest
LZ Kin Blue
14 June 2011









<i>Pteropus dasymallus inopinatus</i>
Japanese Name: Orii-ookoumori
English Name: Ryukyu Flying Fox
JEGS: none
Red List: NT (Okinawa Pref.)
Habitat: Forest
LZ Phoenix
7 July 2011









(Foot Print)




<i>Sus scrofa riukiuanus</i>
Japanese Name: Ryukyuinosisi
English Name: Ryukyu Wild Boar
JEGS: none
Red List: DD (Okinawa Pref.)
Habitat: Forest
LZ Turkey
13 June 2011

	<p><i>Accipiter gularis iwasakii</i></p> <p>Japanese Name: Ryukyu-tumi</p> <p>English Name: Japanese Sparrow Hawk</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), NT(Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Turkey</p> <p>13 June 2011</p>
	<p><i>Charadrius alexandrinus</i></p> <p>Japanese Name: Sirotidori</p> <p>English Name: Kentish Plover</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Coast</p> <p>LZ Coral Runway</p> <p>24 June 2011</p>
	<p><i>Glareola maldivarum</i></p> <p>Japanese Name: Tubametidori</p> <p>English Name: Indian Pratincole</p> <p>JEGS: none</p> <p>Red List: VU (GoJ) VU (Okinawa Pref.)</p> <p>Habitat: Pasture land</p> <p>LZ Coral Runway, VIP Helipad (eggs)</p> <p>22 and 24 June 2011</p>

	<table border="1"> <tr> <td><i>Sterna dougallii bangsi</i></td> </tr> <tr> <td>Japanese Name: Beniajisasi</td> </tr> <tr> <td>English Name: Roseate Tern</td> </tr> <tr> <td>JEGS: none</td> </tr> <tr> <td>Red List: VU (GoJ), NT (Okinawa Pref.)</td> </tr> <tr> <td>Habitat: Coast</td> </tr> <tr> <td></td> </tr> <tr> <td>LZ Kin Red, Kin Red (Alt.)</td> </tr> <tr> <td>15 June 2011</td> </tr> </table>	<i>Sterna dougallii bangsi</i>	Japanese Name: Beniajisasi	English Name: Roseate Tern	JEGS: none	Red List: VU (GoJ), NT (Okinawa Pref.)	Habitat: Coast		LZ Kin Red, Kin Red (Alt.)	15 June 2011
<i>Sterna dougallii bangsi</i>										
Japanese Name: Beniajisasi										
English Name: Roseate Tern										
JEGS: none										
Red List: VU (GoJ), NT (Okinawa Pref.)										
Habitat: Coast										
LZ Kin Red, Kin Red (Alt.)										
15 June 2011										
	<table border="1"> <tr> <td><i>Sterna albifrons sinensis</i></td> </tr> <tr> <td>Japanese Name: Koajisasi</td> </tr> <tr> <td>English Name: Little Tern</td> </tr> <tr> <td>JEGS: none</td> </tr> <tr> <td>Red List: VU (GoJ), VU (Okinawa Pref.)</td> </tr> <tr> <td>Habitat: Sandy Coast</td> </tr> <tr> <td></td> </tr> <tr> <td>LZ Coral Runway</td> </tr> <tr> <td>24 June 2011</td> </tr> </table>	<i>Sterna albifrons sinensis</i>	Japanese Name: Koajisasi	English Name: Little Tern	JEGS: none	Red List: VU (GoJ), VU (Okinawa Pref.)	Habitat: Sandy Coast		LZ Coral Runway	24 June 2011
<i>Sterna albifrons sinensis</i>										
Japanese Name: Koajisasi										
English Name: Little Tern										
JEGS: none										
Red List: VU (GoJ), VU (Okinawa Pref.)										
Habitat: Sandy Coast										
LZ Coral Runway										
24 June 2011										
	<table border="1"> <tr> <td><i>Halcyon coromanda bangsi</i></td> </tr> <tr> <td>Japanese Name: Ryukyuakashoubin</td> </tr> <tr> <td>English Name: Ruddy Kingfisher</td> </tr> <tr> <td>JEGS: none</td> </tr> <tr> <td>Red List: NT (Okinawa Pref.)</td> </tr> <tr> <td>Habitat: Forest</td> </tr> <tr> <td></td> </tr> <tr> <td>LZ Tern</td> </tr> <tr> <td>14 June 2011</td> </tr> </table>	<i>Halcyon coromanda bangsi</i>	Japanese Name: Ryukyuakashoubin	English Name: Ruddy Kingfisher	JEGS: none	Red List: NT (Okinawa Pref.)	Habitat: Forest		LZ Tern	14 June 2011
<i>Halcyon coromanda bangsi</i>										
Japanese Name: Ryukyuakashoubin										
English Name: Ruddy Kingfisher										
JEGS: none										
Red List: NT (Okinawa Pref.)										
Habitat: Forest										
LZ Tern										
14 June 2011										

	<p><i>Sapheopipo noguchii</i></p> <p>Japanese Name: Nogutigera</p> <p>English Name: Pryer's woodpecker, Okinawa woodpecker</p> <p>JEGS: Endangered Species , Special National Monument Species</p> <p>Red List: CR (GoJ), CR (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ 3</p> <p>27 June 2011</p>
	<p><i>Dendrocopos kizuki nigrescens</i></p> <p>Japanese Name: Ryukyukogera</p> <p>English Name: JapanesePygmyWoodpecker</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ 3</p> <p>27 June 2011</p>
	<p><i>Pericrocotus divaricatus tegimae</i></p> <p>Japanese Name: Ryukyusanshoukui</p> <p>English Name: Ryukyu Ashy Minivet</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ 3</p> <p>27 June 2011</p>

	<p><i>Erithacus komadori namiyei</i></p> <p>Japanese Name: Hontoukakahige</p> <p>English Name: Stejner's Ryukyu robin</p> <p>JEGS: Endangered Species , National Monument Species</p> <p>Red List: EN (GoJ) EN (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ 1</p> <p>30 June 2011</p>
	<p><i>Terpsiphone atrocaudata illex</i></p> <p>Japanese Name: Ryukyusankoutyou</p> <p>English Name: Black Paradise Flycatcher</p> <p>JEGS: none</p> <p>Red List: DD (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Rook</p> <p>8 June 2011</p>
	<p><i>Parus varius amamii</i></p> <p>Japanese Name: Amamiyamagara</p> <p>English Name: Varied Tit</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Wren</p> <p>6 June 2011</p>

	<p><i>Geomyda japonica</i></p> <p>Japanese Name: Ryukyuyamagame</p> <p>English Name: Ryukyu Black-breasted Leaf Turtle</p> <p>JEGS: National Monument Species</p> <p>Red List: VU (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ 3</p> <p>27 June 2011</p>
	<p><i>Goniurosaurus kuroi wae kuroi wae</i></p> <p>Japanese Name: Kuroi watokagemodoki</p> <p>English Name: Ryukyu Ground Gecko</p> <p>JEGS: Okinawa Prefecture Monument Species</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Forest, Lime Stone</p> <p>LZ 1</p> <p>28 June 2011</p>
	<p><i>Gekkosp.</i></p> <p>Japanese Name: Okinawayamori</p> <p>English Name: A species of genus Gekko</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Firebase Jones</p> <p>30 June 2011</p>







<i>Japalura polygonata polygonata</i>
Japanese Name: Okinawakinoboritokage
English Name: Okinawan Tree Lizard
JEGS: none
Red List: VU (GoJ), VU (Okinawa Pref.)
Habitat: Forest
LZ Kin Blue
14 June 2011



<i>Plestiodon marginatus marginatus</i>
Japanese Name: Okinawatokage
English Name: Ryukyu five-lined Skink
JEGS: none
Red List: NT (GoJ), NT (Okinawa Pref.)
Habitat: Coast, Bush, Farm Site
LZ Drop Zone
23 June 2011



<i>Achalinus weneri</i>
Japanese Name: Amamitakatiho
English Name: Amami Odd-scaled Snake
JEGS: none
Red List: NT (GoJ), NT (Okinawa Pref.)
Habitat: Forest
LZ 1
28 June 2011

	<p><i>Echinotriton andersoni</i></p> <p>Japanese Name: Iboimori</p> <p>English Name: Anderson's Alligator Newt</p> <p>JEGS: OkinawaPrefectureMonument Species</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Forest, Pond, River</p> <p>LZ Buzzard, LZ Phoenix</p> <p>15 June 2011 and 7 July 2011</p>
	
	<p><i>Cynopsensicauda</i></p> <p>Japanese Name: Siriken-imori</p> <p>English Name: Sword-tailed Newt</p> <p>JEGS: none</p> <p>Red List: NT (GoJ), NT (Okinawa Pref.)</p> <p>Habitat: Forest, Pond, River</p> <p>LZ Heron, LZ Wren</p> <p>6 and 9 June 2011</p>
	<p><i>Hyla hallowellii</i></p> <p>Japanese Name: Haroueruamagaeru</p> <p>English Name: Hallowell's Treefrog</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, Pond</p> <p>LZ Phoenix</p> <p>24 June 2011</p>

	<p><i>Rana</i> sp.</p> <p>Japanese Name: Ryukyuakagaeru</p> <p>English Name: Ryukyu Brown Frog</p> <p>JEGS: none</p> <p>Red List: NT (GoJ), NT (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p style="text-align: right;">LZ 1</p> <p style="text-align: right;">28 June 2011</p>
	<p><i>Limnonectes namiyei</i></p> <p>Japanese Name: Namiegaeru</p> <p>English Name: Namie's Frog</p> <p>JEGS: OkinawaPrefectureMonument Species</p> <p>Red List: EN (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p style="text-align: right;">LZ 3</p> <p style="text-align: right;">27 June 2011</p>
	<p><i>Odorrana ishikawae</i></p> <p>Japanese Name: Ishikawagaeru</p> <p>English Name: Ishikawa's Frog</p> <p>JEGS: OkinawaPrefectureMonument Species</p> <p>Red List: EN (GoJ), EN (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p style="text-align: right;">LZ 3</p> <p style="text-align: right;">27 June 2011</p>






<i>Odorrana narina</i>
Japanese Name: Hanasakigaeru
English Name: Okinawa Tip-nosed Frog
JEGS: none
Red List: VU (GoJ), EN (Okinawa Pref.)
Habitat: Forest, River
LZ 1
28 June 2011









<i>Babina holsti</i>
Japanese Name: Horusutogaeru
English Name: Holst's Frog
JEGS: OkinawaPrefectureMonument Species
Red List: EN (GoJ), EN (Okinawa Pref.)
Habitat: Forest, River
LZ 3
27 June 2011



<i>Agriocnemis pygmaea</i>
Japanese Name: Himeitotonbo
JEGS: none
Red List: NT (GoJ), DD (Okinawa Pref.)
Habitat: Pond, Swamp
LZ Turkey
13 June 2011

	<p><i>Rhipidolestes okinawanus</i></p> <p>Japanese Name: Okinawatogetonbo</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p style="text-align: right;">LZ Rook</p> <p style="text-align: right;">8 June 2011</p>
	<p><i>Rhipidolestes shozoi</i></p> <p>Japanese Name: Yanbarutogetonbo</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p style="text-align: right;">LZ 3</p> <p style="text-align: right;">27 June 2011</p>
	<p><i>Stylogomphus ryukyuanus asatoi</i></p> <p>Japanese Name: Okinawaojirosanae</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p style="text-align: right;">LZ Rail</p> <p style="text-align: right;">6 July 2011</p>

	<p><i>Anotogaster sieboldii</i></p> <p>Japanese Name: Oniyanma</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p>LZ Magpie</p> <p>17 June 2011</p>
	<p><i>Chlorogomphus brunneus brunneus</i></p> <p>Japanese Name: Karasuyanma</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p>LZ Crane, LZ Firebase Jones</p> <p>7 and 30 June 2011</p>
	<p><i>Hemicordulia okinawensis</i></p> <p>Japanese Name: Ryukyutonbo</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, River, Pond</p> <p>LZ Swallow</p> <p>16 June 2011</p>

	<p><i>Salganea taiwanensis ryukyuanus</i></p> <p>Japanese Name: Ryukyukutikigokiburi</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, Fallen tree</p> <p>LZ Wren</p> <p>6 June 2011</p>
	<p><i>Rhabdoblatta guttigera</i></p> <p>Japanese Name: Madaragokiburi</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p>LZ 1</p> <p>28 June 2011</p>
	<p><i>Paterdecolyus yanbarensis</i></p> <p>Japanese Name: Yanbarukurogirisu</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest, River Side</p> <p>LZ Firebase Jones</p> <p>29 June 2011</p>






<i>Rhaphidophora taiwana</i>
Japanese Name: Zunguriuma
JEGS: none
Red List: DD (Okinawa Pref.)
Habitat: Forest
LZ 1
28 June 2011










<i>Trypetimorpha biermani</i>
Japanese Name: Taiwanhautiunka
JEGS: none
Red List: NT (Okinawa Pref.)
Habitat: Glass Land
LZ Magpie
17 June 2011






<i>Muda kuroiwae</i>
Japanese Name: Kuroiwazemi
JEGS: none
Red List: VU (Goj), VU (Okinawa Pref.)
Habitat: Forest
LZ 1
18 August 2011

	<p><i>Chloridolum lochooanum</i></p> <p>Japanese Name: Oosimamidorikamikiri</p> <p>JEGS: none</p> <p>Red List: DD (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Rail</p> <p>7 July 2011</p>
	<p><i>Anopheles sapersi</i></p> <p>Japanese Name: Oohamahadaraka</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest, River</p> <p>LZ 3</p> <p>30 June 2011</p>
	<p><i>Macrostemum okinawanum</i></p> <p>Japanese Name: Okinawahosisimatobikera</p> <p>JEGS: none</p> <p>Red List: NT (GoJ) NT (Okinawa Pref.)</p> <p>Habitat: Forest, River</p> <p>LZ Goose</p> <p>5 July 2011</p>

	<i>Artipeeryxokinawana</i>
	<p>Japanese Name: Iwakawasijimi</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Turkey, LZ Kin Red</p> <p>13 and 15 June 2011</p>
	<p><i>Dichorragia nesimachus ishigakianus</i></p> <p>Japanese Name: Suminagasi</p> <p>JEGS: none</p> <p>Red List: NT (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ 1</p> <p>28 June 2011</p>
	<p><i>Kallima inachuseucerca</i></p> <p>Japanese Name: Konohatyou</p> <p>JEGS: OkinawaPrefectureMonument Species</p> <p>Red List: NT (GoJ), NT (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Firebase Jones</p> <p>29 June 2011</p>

	<p><i>Polyura eudamippus weismanni</i></p> <p>Japanese Name: Furaotyou</p> <p>JEGS: OkinawaPrefectureMonument Species</p> <p>Red List: NT (GoJ) NT (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Goose</p> <p>5 July 2011</p>
	<p><i>Ypthima riukuiana</i></p> <p>Japanese Name: Ryukyuuranamijyanome</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Wren</p> <p>6 June 2011</p>
	<p><i>Liphistiidae gen. sp.</i> <i>(Ryuthela nishihirai nishihirai)</i></p> <p>Japanese Name: Kinuragumorui (Okinawakinuragumo)</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest, Cliff</p> <p>LZ Wren</p> <p>6 June 2011</p>

	<p><i>Ummidia fragaria</i></p> <p>Japanese Name: Kinoboritotategumo</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest, Tree</p> <p>LZ Turkey</p> <p>13 June 2011</p>
	<p><i>Georissa japonica</i></p> <p>Japanese Name: Gomaokatanisi</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Lime Stone</p> <p>LZ Futenma VIP</p> <p>11 July 2011</p>
	<p><i>Japonia barbata</i></p> <p>Japanese Name: Kehadayamatogai</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Flamingo</p> <p>17 June 2011</p>






<i>Leptopoma nitidum</i>
Japanese Name: Aomiokatanisi
JEGS: none
Red List: NT (GoJ)
Habitat: Forest, Tree
LZ Kinser 1
2 June 2011









<i>Platyrhaphe hirasei</i>
Japanese Name: Hiraseatubutagai
JEGS: none
Red List: NT (Okinawa Pref.)
Habitat: Forest
LZ Magpie
18 August 2011






<i>Diplommatina luchuana</i>
Japanese Name: Ryukyugomagai
JEGS: none
Red List: VU (GoJ), VU (Okinawa Pref.)
Habitat: Forest
LZ Rook
18 August 2011

	<p><i>Diplommatina lyrata</i></p> <p>Japanese Name: Kunigamigomagai</p> <p>JEGS: none</p> <p>Red List: VU (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ Rook</p> <p>18 August 2011</p>
	<p><i>Tornatellides boeningi</i></p> <p>Japanese Name: Nomigai</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Coast, Bush, Leaf</p> <p>LZ Courtney</p> <p>3 June 2011</p>
	<p><i>Gastrocopta armigerella</i></p> <p>Japanese Name: Sunagai</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Coast, Forest</p> <p>LZ Swan</p> <p>13 June 2011</p>

	<p><i>Luchuena fulva</i></p> <p>Japanese Name: Usutyairokiserugaimodoki</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest, Tree</p> <p>LZ 1</p> <p>28 June 2011</p>
	<p><i>Luchuphaedusa callistochila</i></p> <p>Japanese Name: Kintyakugiseru</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p>LZ 3</p> <p>27 June 2011</p>
	<p><i>Selenozaptyx inversiluna</i></p> <p>Japanese Name: Sakazukinomigiseru</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Forest, Fallen Tree</p> <p>LZ Cardinal</p> <p>18 August 2011</p>

	<p><i>Videnoida horiomphala</i></p> <p>Japanese Name: Ookasamaimai</p> <p>JEGS: none</p> <p>Red List: NT (GoJ)</p> <p>Habitat: Forest, Fallen Tree</p> <p>LZ Phoenix</p> <p>7 July 2011</p>
	<p><i>Bekkochlamys perfragilis</i></p> <p>Japanese Name: Bekkoumaimai</p> <p>JEGS: none</p> <p>Red List: DD (GoJ)</p> <p>Habitat: Forest</p> <p>LZ Crane</p> <p>7 June 2011</p>
	<p><i>Satsuma largillierti</i></p> <p>Japanese Name: Okinawayamatakamaimai</p> <p>JEGS: none</p> <p>Red List: VU (GoJ), VU (Okinawa Pref.)</p> <p>Habitat: Forest, Tree</p> <p>LZ Courtney</p> <p>2 June 2011</p>

	<p><i>Satsuma lewisii</i></p> <p>Japanese Name: Yanbarumaimai</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ 3</p> <p style="text-align: right;">27 June 2011</p>
	<p><i>Aegista lepidophora</i></p> <p>Japanese Name: Urokokemaimai</p> <p>JEGS: none</p> <p>Red List: EN (Okinawa Pref.)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ Rook</p> <p style="text-align: right;">8 June 2011</p>
	<p><i>Aegista scepasma</i></p> <p>Japanese Name: Itomanmaimai</p> <p>JEGS: none</p> <p>Red List: VU (GoJ)</p> <p>Habitat: Forest</p> <p style="text-align: right;">LZ 1</p> <p style="text-align: right;">28 June 2011</p>






<i>Coenobita rugosus</i>
Japanese Name: Nakiokayadokari
JEGS: National Monument Species
Red List: none
Habitat: Coast
LZ Swan
13 June 2011



<i>Coenobita purpureus</i>
Japanese Name: Murasakiokayadokari
JEGS: National Monument Species
Red List: none
Habitat: Coast
LZ Swan
13 June 2011



<i>Coenobita cavipes</i>
Japanese Name: Okayadokari
JEGS: National Monument Species
Red List: none
Habitat: Forest
LZ Kin Red
15 June 2011

	<table border="1"> <tr> <td><i>Chiromantes haematocheir</i></td> </tr> <tr> <td>Japanese Name: Akategani</td> </tr> <tr> <td> </td> </tr> <tr> <td>JEGS: none</td> </tr> <tr> <td>Red List: NT (Okinawa Pref.)</td> </tr> <tr> <td>Habitat: Forest, River</td> </tr> <tr> <td> </td> </tr> <tr> <td style="text-align: right;">LZ Phoenix</td> </tr> <tr> <td style="text-align: right;">7 July 2011</td> </tr> </table>	<i>Chiromantes haematocheir</i>	Japanese Name: Akategani		JEGS: none	Red List: NT (Okinawa Pref.)	Habitat: Forest, River		LZ Phoenix	7 July 2011
<i>Chiromantes haematocheir</i>										
Japanese Name: Akategani										
JEGS: none										
Red List: NT (Okinawa Pref.)										
Habitat: Forest, River										
LZ Phoenix										
7 July 2011										
	<table border="1"> <tr> <td><i>Geothelphusa levicervix</i></td> </tr> <tr> <td>Japanese Name: Oosawagani</td> </tr> <tr> <td> </td> </tr> <tr> <td>JEGS: none</td> </tr> <tr> <td>Red List: CR (GoJ)</td> </tr> <tr> <td>Habitat: Forest, River</td> </tr> <tr> <td> </td> </tr> <tr> <td style="text-align: right;">LZ 3</td> </tr> <tr> <td style="text-align: right;">27 June 2011</td> </tr> </table>	<i>Geothelphusa levicervix</i>	Japanese Name: Oosawagani		JEGS: none	Red List: CR (GoJ)	Habitat: Forest, River		LZ 3	27 June 2011
<i>Geothelphusa levicervix</i>										
Japanese Name: Oosawagani										
JEGS: none										
Red List: CR (GoJ)										
Habitat: Forest, River										
LZ 3										
27 June 2011										
	<table border="1"> <tr> <td><i>Candidiopotamon okinawense</i></td> </tr> <tr> <td>Japanese Name: Okinawaminamisawagani</td> </tr> <tr> <td> </td> </tr> <tr> <td>JEGS: none</td> </tr> <tr> <td>Red List: NT (GoJ), VU (Okinawa Pref.)</td> </tr> <tr> <td>Habitat: Forest, River</td> </tr> <tr> <td> </td> </tr> <tr> <td style="text-align: right;">LZ 3</td> </tr> <tr> <td style="text-align: right;">27 June 2011</td> </tr> </table>	<i>Candidiopotamon okinawense</i>	Japanese Name: Okinawaminamisawagani		JEGS: none	Red List: NT (GoJ), VU (Okinawa Pref.)	Habitat: Forest, River		LZ 3	27 June 2011
<i>Candidiopotamon okinawense</i>										
Japanese Name: Okinawaminamisawagani										
JEGS: none										
Red List: NT (GoJ), VU (Okinawa Pref.)										
Habitat: Forest, River										
LZ 3										
27 June 2011										




(Carapace shell)

APPENDIX C
PHOTO COLLECTIONS OF LZ AREA




Representative Photos




	<p>LZ Name: LHA/LHD</p> <hr/> <p>Date: 22 June 2011</p> <hr/> <p>Dominant Environment: Developed Land (cleared)</p> <hr/> <hr/> <hr/>
	<p>LZ Name: Coral Runway</p> <hr/> <p>Date: 20 June 2011</p> <hr/> <p>Dominant Environment: Pasture Land</p> <hr/> <hr/> <hr/>
	<p>LZ Name: Sling Load</p> <hr/> <p>Date: 21 June 2011</p> <hr/> <p>Dominant Environment: Pasture Land</p> <hr/> <hr/> <hr/>

	<p>LZ Name: Sling Load Alternative</p> <hr/> <p>Date: 22 June 2011</p> <hr/> <p>Dominant Environment: Pasture Land</p> <hr/> <hr/> <hr/> <hr/>
	<p>LZ Name: VIP Helipad</p> <hr/> <p>Date: 20 June 2011</p> <hr/> <p>Dominant Environment: Pasture Land</p> <hr/> <hr/> <hr/> <hr/>
	<p>LZ Name: Drop Zone</p> <hr/> <p>Date: 21 June 2011</p> <hr/> <p>Dominant Environment: Pasture Land</p> <hr/> <hr/> <hr/> <hr/>

	<p>LZ Name: LZ1</p> <hr/> <p>Date: 28 June 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i></p> <p>association</p> <hr/>
	<p>LZ Name: LZ3</p> <hr/> <p>Date: 27 June 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i></p> <p>association</p> <hr/>
	<p>LZ Name: Firebase Jones</p> <hr/> <p>Date: 30 June 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Castanopsis sieboldii</i>-<i>Illicium anisatum</i></p> <p>association</p> <hr/>




	<p>LZ Name: Buzzard</p> <hr/> <p>Date: 3 June 2011</p> <hr/> <p>Dominant Environment: <i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association</p> <hr/>
	<p>LZ Name: Cardinal</p> <hr/> <p>Date: 17 August 2011</p> <hr/> <p>Dominant Environment: <i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association</p> <hr/>
	<p>LZ Name: Crane</p> <hr/> <p>Date: 13 June 2011</p> <hr/> <p>Dominant Environment: <i>Pinus luchuensis</i> community</p> <hr/>


	<p>LZ Name: Flamingo</p> <hr/> <p>Date: 11 June 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Psychotria rubra</i>-<i>Schima wallidhii</i> ssp. <i>liukuensis</i> community</p> <hr/> <hr/>
	<p>LZ Name: Gander</p> <hr/> <p>Date: 16 August 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association</p> <hr/> <hr/>
	<p>LZ Name: Goose</p> <hr/> <p>Date: 5 July 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association</p> <hr/> <hr/>




	<p>LZ Name: Heron</p> <hr/> <p>Date: 14 June 2011</p> <hr/> <p>Dominant Environment: Pinus luchuensis community</p> <hr/> <hr/> <hr/>
	<p>LZ Name: Kin Blue</p> <hr/> <p>Date: 15 June 2011</p> <hr/> <p>Dominant Environment: <i>Casuarina</i> plantation</p> <hr/> <hr/> <hr/>
	<p>LZ Name: Kin Red</p> <hr/> <p>Date: 17 June 2011</p> <hr/> <p>Dominant Environment: Developed Land (residential and commercial area)</p> <hr/> <hr/>

	<p>LZ Name: Kin Red(Alt)</p> <hr/> <p>Date: 17 June 2011</p> <hr/> <p>Dominant Environment: <i>Casuarina</i> plantation</p> <hr/> <hr/> <hr/> <hr/>
	<p>LZ Name: Magpie</p> <hr/> <p>Date: 9 June 2011</p> <hr/> <p>Dominant Environment: <i>Psychotria rubra</i>-<i>Schima wallidhii</i> ssp. <i>liukiensis</i> community</p> <hr/> <hr/> <hr/>
	<p>LZ Name: Petrel</p> <hr/> <p>Date: 10 June 2011</p> <hr/> <p>Dominant Environment: <i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association</p> <hr/> <hr/> <hr/>

	<p>LZ Name: Phoenix</p> <hr/> <p>Date: 24 June 2011</p> <hr/> <p>Dominant Environment: <i>Psychotria rubra-Schima wallidhii</i> ssp. <i>liukuensis</i> community</p> <hr/> <hr/>
	<p>LZ Name: Rail</p> <hr/> <p>Date: 7 July 2011</p> <hr/> <p>Dominant Environment: <i>Quercus miyagii</i> community</p> <hr/> <hr/>
	<p>LZ Name: Raven</p> <hr/> <p>Date: 8 June 2011</p> <hr/> <p>Dominant Environment: <i>Pinus luchuensis</i> community</p> <hr/> <hr/>

	<p>LZ Name: Rook</p> <hr/> <p>Date: 6 June 2011</p> <hr/> <p>Dominant Environment: <i>Pinus luchuensis</i> community</p> <hr/> <hr/> <hr/>
	<p>LZ Name: Swallow</p> <hr/> <p>Date: 1 July 2011</p> <hr/> <p>Dominant Environment: <i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association</p> <hr/> <hr/> <hr/>
	<p>LZ Name: Swan</p> <hr/> <p>Date: 16 June 2011</p> <hr/> <p>Dominant Environment: <i>Trema orientalis</i> / <i>Oreocnide pedunculata</i> alliance</p> <hr/> <hr/> <hr/>

	<p>LZ Name: Tern</p> <hr/> <p>Date: 2 June 2011</p> <hr/> <p>Dominant Environment: <i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association</p> <hr/>
	<p>LZ Name: Turkey</p> <hr/> <p>Date: 7 June 2011</p> <hr/> <p>Dominant Environment: <i>Psychotria rubra</i> - <i>Schima wallidhii</i> ssp. <i>lukiensis</i> community</p> <hr/>
	<p>LZ Name: Wren</p> <hr/> <p>Date: 6 July 2011</p> <hr/> <p>Dominant Environment: <i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association</p> <hr/>

	<p>LZ Name: Courtney</p> <hr/> <p>Date: 23 June 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Macaranga tanarius</i> community</p> <hr/> <hr/>
	<p>LZ Name: Futenma VIP</p> <hr/> <p>Date: 11 July 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Macaranga tanarius</i> community</p> <hr/> <hr/>
	<p>LZ Name: Kinser 1</p> <hr/> <p>Date: 18 June 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Macaranga tanarius</i> community</p> <hr/> <hr/>

	<p>LZ Name: Plaza</p> <hr/> <p>Date: 8 July 2011</p> <hr/> <p>Dominant Environment:</p> <p><i>Psychotria manillensis</i> - <i>Cinnamomum</i> <i>pseudo-ped</i> community</p> <hr/>
	<p>LZ Name: Schwab 3</p> <hr/> <p>Date: 20011.7.12</p> <hr/> <p>Dominant Environment:</p> <p><i>Psychotria rubra</i> - <i>Schima wallidhii</i> ssp. <i>liukiensis</i> community</p> <hr/>

APPENDIX D
GIS DATA DESCRIPTION

Table

GDB name	Table name	Contents	Field name	Field type	Description
Natural Resource Data	FAUNA CLASSIFICATION	Classification table of fauna	fa_cls_id	text (20)	fauna classification ID
			class_name	text (30)	'class' or 'category name' (not official 'class' name)
			genus	text (40)	genus name
			species	text (40)	species name
			subspecies	text (30)	sub species name (if applicable)
			narrative	text (240)	Japanese common name; English common name If a species does not have English common name, the cell is left blank.
			user_flag	text (20)	family name
			media_id	text (20)	modified field/added record for Hansen and MV22 (information for Mr) - added: added new record for Hansen - ID_replaced: Aves which the ID was changed for Hansen project. These species have some changes of items other than ID. - ge : genus for Hansen - o_n : ord_name for Hansen - spe : species for Hansen - subs : subspecies for Hansen - u_f : user_flag for Hansen - LZ_added: added new record for MV22 - Lge : genus for MV22 - Lo_n : ord_name for MV22 - Lspe : species for MV22 - Lsubs : subspecies for MV22 - Lnar : narrative for MV22 - Lf_d : faclass_d for MV22
			meta_id	text (20)	old fauna classification ID if "fa_cls_id" was replaced.
			ord_name	text (30)	order name
			faclass_d	domain	'class' or 'category name'
			nat_monument_goj	text (30)	category value in Natural Monument (GOJ) (e.g. Special Natural Monument, Natural Monument)
			nat_monument_oki	text (20)	category value in Natural Monument (Okinawa) (e.g. Natural Monument)
			jap_endangered_sp	text (30)	category value in Law of Japanese Endangered Species (e.g. National Endangered, Specified National Endangered, International Endangered, etc)
			redlist_goj (added)	text (10)	category value in the red list (e.g. CR, EN, etc)
			RDB_oki (added)	text (10)	category value in the Red Data Book (e.g. CR, EN, etc)

Table

GDB name	Table name	Contents	Field name	Field type	Description
Natural Resource Data	FLORA_CLASSIFICATION	Classification table of flora	flo_cls_id	text (20)	flora classification ID
			meta_id	text (20)	division name
			plant_name	text (40)	family name
			genus	text (40)	genus name
			sci_name	text (40)	scientific name = genus + species (+ subspecies)
			plant_desc	text (60)	this field just explains that 'meta_id' should be 'division' and 'plant_name' should be 'family' name.
			species	text (40)	'species' name
			user_flag	text (20)	English common name (species found in MV-22 survey) If a species does not have English common name, the cell is left blank.
			media_id	text (20)	modified field/added record for Hansen and MV22 (information for Mir) <ul style="list-style-type: none"> - added: added new record for Hansen - met_id: meta_id for Hansen - pl_d : plant_desc for Hansen - c_n : comm_name for Hansen - ge : genus for Hansen - sp : species for Hansen - sc_n : sci_name for Hansen - pl_n : plant_name for Hansen - a_n : alias_name for Hansen - LZ_added: added new record for MV22 - Lge : genus for MV22 - Lsp : species for MV22 - Lsc_n : sci_name for MV22 - Lc_n : comm_name for MV22
			comm_name	text (30)	Japanese common name
			nat_monument_goj	text (30)	category value in Natural Monument (GOJ) (e.g. Special Natural Monument, Natural Monument)
			nat_monument_oki	text (20)	category value in Natural Monument (Okinawa) (e.g. Natural Monument)
			jap_endangered_sp	text (30)	category value in Law of Japanese Endangered Species (e.g. National Endangered, Specified National Endangered, International Endangered, etc)
redlist_goj	text (10)	category value in the red list (e.g. CR, EN, etc)			
RDB_oki	text (10)	category value in the Red Data Book (e.g. CR, EN, etc)			

* If you want to pick up protected species for MV22, Select species is listed in 'nat_monument_goj', 'nat_monument_oki' or 'jap_endangered_sp (except 'International Endangered')'.
If you want to pick up red list species for MV22, Select species is listed in 'redlist_goj' or 'RDB_oki'.

Feature Class

Feature GDB name data set name	Feature class name	Contents	Field name	Required /Recommended fields	Field type	Description
Natural Resource Data	fauna_special_species_point	Locations for special species (redlisted, natural monument, endangered species, etc)	fa_cls_id	Required	text (20)	ID of FAUNA_CLASSIFICATION
			date_desig	Required	long int (4)	researched date [format: YYYYMMDD; e.g. 30th Sep,2010 -> 20100930]
			user_flag	Required	text (20)	Project ID 'N62470-10-D-3008' (shorthand ver.)
			instn_id	Required	text (20)	Installation ID e.g. 'M67400-0002'
			narrative	Required	text (240)	Japanese common name; English common name.
			pop_count	Required	float (4)	Number of individuals identified within the given area if counted.
			feat_desc	Recommended	text (60)	conditions of species /any notes (call, fly, dead, larva, feeding marks, etc)
			hab_use_d	Recommended	domain	habitat type (if there are not selection, the cell is left blank)
			project_id	Required	text (50)	Project ID 'N62470-10-D-3008; CTO KB01'
			narrative	Recommended	text (240)	LZ name
			instn_id	Recommended	text (20)	Installation ID e.g. 'M67400-0002'
			fa_cls_id	Required	text (20)	ID of FAUNA_CLASSIFICATION
			project_id	Required	text (50)	Project ID 'N62470-10-D-3008; CTO KB01'
			instn_id	Required	text (20)	Installation ID e.g. 'M67400-0002'
			hab_use_d	Required	domain	habitat type
Natural Resource Data	trapping_point	Locations that traps are set	feat_desc	Required	text (60)	'Potential Habitat Area' or 'Potential Breeding Area'
			date_sampl	Required	long int (4)	researched date [format: YYYYMMDD; e.g. 30th Sep,2010 -> 20100930]
			user_flag	Required	text (20)	Project ID 'N62470-10-D-3008' (shorthand ver.)
			instn_id	Required	text (20)	Installation ID e.g. 'M67400-0002'
			trap_typ_d	Required	domain	trap type (if there are not selection, the cell is left blank)
			meta_id	Required	text (20)	name of trap /method of survey (e.g. light trap)
			fa_cls_id	Required	text (20)	fauna type (e.g. Spider, insect)
			flo_cls_id	Required	text (20)	Flora classification ID
			user_flag	Required	text (20)	Project ID 'N62470-10-D-3008' (shorthand ver.)
			instn_id	Required	text (20)	Installation ID e.g. 'M67400-0002'
			date_sampl	Required	long int (4)	researched date [format: YYYYMMDD; e.g. 30th Sep,2010 -> 20100930]
			plnt_typ_d	Required	domain	plant type
			feat_desc	Required	text (60)	'potential' if the area is potential habitat area for Protected flora species
			pop_count	Required	long int (4)	Number of individuals observed
			Flora	flora_study_area	Survey area of the project	hab_use_d
study_id	Required	text (50)				Project ID 'N62470-10-D-3008; CTO KB01'
user_flag	Required	text (20)				LZ name
instn_id	Recommended	text (20)				Installation ID e.g. 'M67400-0002'
project_id	Required	text (50)				Project ID 'N62470-10-D-3008; CTO KB01'
instn_id	Required	text (20)				Installation ID e.g. 'M67400-0002'
dom_typ_d	Required	domain				vegetation type
feat_name	Required	text (60)				abbreviated community name
date_sampl	Required	long int (4)				researched date [format: YYYYMMDD; e.g. 30th Sep,2010 -> 20100930]
project_id	Required	text (50)				Project ID 'N62470-10-D-3008; CTO KB01'
instn_id	Required	text (20)				Installation ID e.g. 'M67400-0002'
feat_name	Required	text(60)				name of the vegetation (this value is the same as 'feat_name' of 'land_vegetation_area')
date_sampl	Required	long int (4)				researched date [format: YYYYMMDD; e.g. 30th Sep,2010 -> 20100930]
feat_desc	Required	text(60)				method of sampling
Flora	land_vegetation_study_point_	Survey locations of Vegetation				project_id
			instn_id	Required	text (20)	Installation ID e.g. 'M67400-0002'
			feat_name	Required	text(60)	name of the vegetation (this value is the same as 'feat_name' of 'land_vegetation_area')

EAC original Feature Class

GDB name	Feature class name	Contents	Field name	Field type	Description
Water_ Data_EAC	Pond_	Pond identified within the survey area	LZ_name	text (40)	LZ name
	Strem_	Stream identified within the survey area	LZ_name	text (40)	LZ name

APPENDIX E
VEGETATION TABLES

Codes for the Braun-Blanquet Phytosociological Vegetation Analysis

Density (Cover-Abundance)

- 5- covering more than 75% of the area;
- 4- any number of individuals covering 50-75% of the area;
- 3- any number of individuals covering 25-50% of the area;
- 2- very numerous, covering 5-25 % of the area;
- 1- plentiful but of small cover value, 1-5%;
- + sparsely or very sparsely present, cover very small, <1%.

Sociability

- 5- in great crowds, pure populations.
- 4- in small colonies, in extensive patches or forming carpets;
- 3- in troops, small patches or cushions;
- 2- grouped or tufted;
- 1- growing one in a place singly;

Vegetation Table

No.	1	LZ Name	LHA/LHD	22-Jun-11	Surveyor			
	Topography	Flat Area		Wind	Middle	Elevation	35 m	
				Sun Light	High	Direction	-	
				Soil Humidity	Suitable	Slope Degree	-	
						Survey Area	2 x 2 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	_____	_____	_____	_____	_____	D·S means "Density" and "Sociability"		
II Sub-Tree layer	_____	_____	_____	_____	_____			
III Shrub layer	_____	_____	_____	_____	_____			
IV Herb layer	~ 0.6	90	_____	_____	_____			
V Moss layer	_____	_____	_____	_____	_____			
	D·S	IV	D·S		D·S		D·S	
1	5·5	<i>Panicum repens</i>						
2	+	<i>Borreria laevis</i>						
3	+	<i>Oxalis corniculata</i>						
4	+	<i>Malvastrum coromandelianum</i>						
5	+	<i>Dichanthium annulatum</i>						
6	+	<i>Bidens pilosa</i> var. <i>radiata</i> f. <i>decumbens</i>						
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Vegetation		<i>Panicum repens</i> community						

Vegetation Table

No.	2	LZ Name	LHD Pad	22-Jun-11	Surveyor		
	Topography	Flat Area		Wind	Middle	Elevation	33 m
				Sun Light	High	Direction	-
				Soil Humidity	Suitable	Slope Degree	-
						Survey Area	10 × 10 m
	Layer	Height (m)	Cover (%)	Dominant species		Remarks	
	I Tree layer	_____	_____	_____	_____	D·S means "Density" and "Sociability"	
	II Sub-Tree layer	~ 8	70	_____	_____		
	III Shrub layer	~ 3	50	_____	_____		
	IV Herb layer	~ 0.3	10	_____	_____		
	V Moss layer	_____	_____	_____	_____		
	D·S	II	D·S	III	D·S	IV	D·S
1	3·3	<i>Morus australis</i>	3·3	<i>Pittosporum tobira</i>	1·1	<i>Paederia scandens</i>	
2	2·2	<i>Leucaena leucocephala</i>	+	<i>Leucaena leucocephala</i>	1·2	<i>Leucaena leucocephala</i>	
3	1·1	<i>Pittosporum tobira</i>	+	<i>Paederia scandens</i>	+	<i>Ipomoea acuminata</i>	
4	1·1	<i>Euonymus japonicus</i>	+	<i>Ipomoea acuminata</i>	+	<i>Pittosporum tobira</i>	
5	+	<i>Paederia scandens</i>					
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Vegetation	<i>Trema orientalis</i> / <i>Oreocnide pedunculata</i> alliance						

Vegetation Table

No.	I	LZ Name	Sling Load Alternative	22-Jun-11	Surveyor		
	Topography		Flat Area	Wind	Middle	Elevation	41 m
				Sun Light	High	Direction	-
				Soil Humidity	Suitable	Slope Degree	-
						Survey Area	5 x 5 m
	Layer	Height (m)	Cover (%)	Dominant species		Remarks	
	I Tree layer	_____	_____	_____	_____	D-S means "Density" and "Sociability"	
	II Sub-Tree layer	_____	_____	_____	_____		
	III Shrub layer	~ 3	60	_____	_____		
	IV Herb layer	~ 0.8	100	_____	_____		
	V Moss layer	_____	_____	_____	_____		
	D·S	III	D·S	IV	D·S	D·S	
1	4-4	<i>Leucaena leucocephala</i>	5-5	<i>Bidens pilosa var. radiata f. decumbens</i>			
2	+	<i>Morus australis</i>	1-1	<i>Panicum maximum</i>			
3	+	<i>Clematis grata var. ryukyuensis</i>	+	<i>Rubus parvifolius</i>			
4			+	<i>Leucaena leucocephala</i>			
5			+	<i>Panicum repens</i>			
6			+	<i>Clematis grata var. ryukyuensis</i>			
7			+	<i>Artemisia princeps</i>			
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Vegetation		<i>Leucaena leucocephala</i> community					

Vegetation Table

No.	I	LZ Name	Drop zone	21-Jun-11		Surveyor	
	Topography		Flat Area	Wind	Middle	Elevation	50 m
				Sun Light	High	Direction	-
				Soil Humidity	Suitable	Slope Degree	-
						Survey Area	15 x 15 m
	Layer	Height (m)	Cover (%)	Dominant species		Remarks	
	I Tree layer	_____	_____	_____	_____	D-S means "Density" and "Sociability"	
	II Sub-Tree layer	_____	_____	_____	_____		
	III Shrub layer	~ 3	70	_____	_____		
	IV Herb layer	~ 0.6	70	_____	_____		
	V Moss layer	_____	_____	_____	_____		
	D·S	III	D·S	IV	D·S	D·S	
1	4·4	<i>Leucaena leucocephala</i>	3·3	<i>Bidens pilosa</i> var. <i>radiata</i> f. <i>decumbens</i>			
2	1·1	<i>Morus australis</i>	1·1	<i>Ipomoea acuminata</i>			
3	1·1	<i>Pennisetum purpureum</i>	1·1	<i>Pennisetum purpureum</i>			
4	+	<i>Ipomoea acuminata</i>	+	<i>Chloris gayana</i>			
5	+	<i>Clematis terniflora</i>	+	<i>Leucaena leucocephala</i>			
6			+	<i>Rubus parvifolius</i>			
7			+	<i>Solanum americana</i> var. <i>nodiflorum</i>			
8			+	<i>Pittosporum tobira</i>			
9			+	<i>Morus australis</i>			
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Vegetation	<i>Leucaena leucocephala</i> community						

Vegetation Table

No.	I	LZ Name	LZ-1				28-Jun-11		Surveyor	
opog.	pe						Wind	Middle	Elevation	261 m
							Sun Light	Middle-shadow	Direction	NW50
							Soil Humidity	Suitable	Slope degree	40°
									Survey area	15 × 15 m
Layer	Height (m)	Cover (%)	Dominant species				Remarks			
I Tree layer	~ 14	90					D·S means "Density" and "Sociability"			
II Sub-Tree layer	~ 8	10								
III Shrub layer	~ 5	60								
IV Herb layer	~ 0.8	20								
V Moss layer										
D·S	I	D·S	II	D·S	III	D·S	IV			
1	5·5	<i>Castanopsis sieboldii</i>	1·1	<i>Elaeocarpus japonicus</i>	2·2	<i>Syzygium buxifolium</i>	1·1	<i>Alpinia intermedia</i>		
2	1·1	<i>Schima wallichii liukuensis</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>	2·2	<i>Pleioblastus linearis</i>	1·1	<i>Alsophila podophylla</i>		
3	+	<i>Styrax japonicus</i>	+	<i>Schima wallichii liukuensis</i>	2·2	<i>Distylium racemosum</i>	+	<i>Pleioblastus linearis</i>		
4	+	<i>Psychotria serpens</i>	+	<i>Castanopsis sieboldii</i>	+	<i>Ilex goshiensis</i>	+	<i>Rapanea nerifolia</i>		
5	+	<i>Persea thunbergii</i>	+	<i>Distylium racemosum</i>	+	<i>Schefflera octophylla</i>	+	<i>Psychotria serpens</i>		
6			+	<i>Psychotria serpens</i>	+	<i>Ternstroemia gymnanthera</i>	+	<i>Ardisia crenata</i>		
7			+	<i>Dendropanax trifidus</i>	+	<i>Rapanea nerifolia</i>	+	<i>Anodendron affine</i>		
8					+	<i>Podocarpus macrophyllus</i>	+	<i>Schefflera octophylla</i>		
9					+	<i>Ilex maximowicziana var. mutchagara</i>	+	<i>Castanopsis sieboldii</i>		
10					+	<i>Dendropanax trifidus</i>	+	<i>Smilax china var. kuru</i>		
11					+	<i>Neolitsea aciculata</i>	+	<i>Diplospora dubia</i>		
12					+	<i>Psychotria serpens</i>	+	<i>Persea thunbergii</i>		
13					+	<i>Camellia japonica</i>	+	<i>Selaginella doederleinii</i>		
14					+	<i>Tarenna gracilipes</i>	+	<i>Ternstroemia gymnanthera</i>		
15					+	<i>Ilex ficoidea</i>	+	<i>Ardisia sieboldii</i>		
16					+	<i>Randia canthioides</i>	+	<i>Cinnamomum doederleinii</i>		
17					+	<i>Turpinia ternata</i>	+	<i>Dendropanax trifidus</i>		
18					+	<i>Antidesma japonicum</i>	+	<i>Ctenitis subglandulosa</i>		
19							+	<i>Lophatherum gracile</i>		
20							+	<i>Lasianthus fordii</i>		
21							+	<i>Distylium racemosum</i>		
22							+	<i>Smilax nervo-marginata</i>		
23							+	<i>Syzygium buxifolium</i>		
24							+	<i>Glochidion zeylanicum</i>		
25							+	<i>Ardisia quinquegona</i>		
26							+	<i>Liparis bituberculata var. formosana</i>		
27							+	<i>Camellia sasanqua</i>		
28							+	<i>Elaeocarpus sylvestris</i>		
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Vegetation	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association									

Vegetation Table

No.	2	LZ Name	LZ-1	28-Jun-11	Surveyor				
Topography		Bottom of Slope			Wind	Middle	Elevation	241 m	
					Sun Light	High	Direction	SW30	
					Soil Humidity	Suitable	Slope Degree	45°	
					Survey area		10 × 10 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	_____	_____	_____	_____	_____	D·S means "Density" and "Sociability"			
II Sub-Tree layer	~ 9	70	_____	_____	_____				
III Shrub layer	~ 3	10	_____	_____	_____				
IV Herb layer	~ 1.3	90	_____	_____	_____				
V Moss layer	_____	_____	_____	_____	_____				
D·S	II	D·S	III	D·S	IV	D·S			
1	4·4 <i>Pinus luchuensis</i>	1·1	<i>Schima wallichii liukuensis</i>	5·5	<i>Dicranopteris linearis</i>				
2	1·1 <i>Schima wallichii liukuensis</i>			+	<i>Miscanthus sinensis</i>				
3	1·1 <i>Rhus succedanea</i>			+	<i>Blechnum orientale</i>				
4	+ <i>Myrica rubra</i>								
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Vegetation		<i>Pinus luchuensis</i> community							

Vegetation Table

No.	3	LZ Name	LZ-1	28-Jun-11	Surveyor	
	Topography	Flat Area		Wind	Middle	Elevation 272 m
				Sun Light	High	Direction -
				Soil Humidity	Suitable	Slope Degree -
						Survey Area 3 x 3 m
	Layer	Height (m)	Cover (%)	Dominant species		Remarks
	I Tree layer	_____	_____	_____	_____	D-S means "Density" and "Sociability"
	II Sub-Tree layer	_____	_____	_____	_____	
	III Shrub layer	_____	_____	_____	_____	
	IV Herb layer	~ 1.5	90	_____	_____	
	V Moss layer	_____	_____	_____	_____	
	D·S	IV	D·S	D·S	D·S	
1	4-3	<i>Miscanthus sinensis</i>				
2	1-1	<i>Scirpus ternatanus</i>				
3	1-1	<i>Nephrolepis auriculata</i>				
4	1-1	<i>Thelypteris acuminata</i>				
5	+·2	<i>Imperata cylindrica var. major</i>				
6	+	<i>Mallotus japonicus</i>				
7	+	<i>Leucaena leucocephala</i>				
8	+	<i>Myrica rubra</i>				
9	+	<i>Bidens pilosa var. radiata f. decumbens</i>				
10	+	<i>Carex brunnea</i>				
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Vegetation	<i>Leucaena leucocephala</i> / <i>Miscanthus sinensis</i> community					

Vegetation Table

No.	I	LZ Name	LZ-3		27-Jun-11		Surveyor			
Topography		Slope			Wind	Middle	Elevation	185 m		
					Sun Light	Middle-shadow	Direction	SW70		
					Soil Humidity	Suitable	Slope Degree	23 °		
							Survey Area	15 × 15 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks				
I Tree layer	~ 12	80				D-S means "Density" and "Sociability"				
II Sub-Tree layer	~ 7	50								
III Shrub layer	~ 3	40								
IV Herb layer	~ 1	20								
V Moss layer										
D·S	I	D·S	II	D·S	III	D·S	IV			
1	4-4	<i>Castanopsis sieboldii</i>	3-3	<i>Distylium racemosum</i>	1-1	<i>Pleioblastus linearis</i>	1-1	<i>Schima wallichii liukiensis</i>		
2	3-3	<i>Schima wallichii liukiensis</i>	1-1	<i>Syzygium buxifolium</i>	1-1	<i>Elaeocarpus japonicus</i>	1-1	<i>Rapanea nerifolia</i>		
3	+	<i>Psychotria serpens</i>	1-1	<i>Randia canthioides</i>	1-1	<i>Antidesma japonicum</i>	1-1	<i>Distylium racemosum</i>		
4			+	<i>Castanopsis sieboldii</i>	1-1	<i>Distylium racemosum</i>	+	<i>Psychotria serpens</i>		
5			+	<i>Diplospora dubia</i>	1-1	<i>Syzygium buxifolium</i>	+	<i>Neolitsea aciculata</i>		
6			+	<i>Clevera japonica</i>	+	<i>Vaccinium wrightii</i>	+	<i>Lindsaea orbiculata var. commixta</i>		
7			+	<i>Podocarpus macrophyllus</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Syzygium buxifolium</i>		
8			+	<i>Ternstroemia gymnanthera</i>	+	<i>Randia canthioides</i>	+	<i>Randia canthioides</i>		
9			+	<i>Ilex liukiensis</i>	+	<i>Meliosma lepidota squumulata</i>	+	<i>Ilex liukiensis</i>		
10			+	<i>Psychotria serpens</i>	+	<i>Neolitsea aciculata</i>	+	<i>Tutcheria virgata</i>		
11			+	<i>Dendropanax trifidus</i>	+	<i>Ilex goshiensis</i>	+	<i>Ilex maximowicziana var. mutchagara</i>		
12			+	<i>Schima wallichii liukiensis</i>	+	<i>Dendropanax trifidus</i>	+	<i>Rhaphiolepis indica</i>		
13			+	<i>Elaeocarpus japonicus</i>	+	<i>Lasianthus cyanocarpus</i>	+	<i>Camellia japonica</i>		
14			+	<i>Smilax nervo-marginata</i>	+	<i>Ilex maximowicziana var. mutchagara</i>	+	<i>Symplocos urceolaris</i>		
15			+	<i>Schefflera octophylla</i>	+	<i>Schima wallichii liukiensis</i>	+	<i>Cinnamomum doederleinii</i>		
16					+	<i>Rapanea nerifolia</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>		
17					+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Pittosporum tobira</i>		
18					+	<i>Symplocos glauca</i>	+	<i>Glochidion acuminatum</i>		
19					+	<i>Ilex liukiensis</i>	+	<i>Dendropanax trifidus</i>		
20							+	<i>Lasianthus cyanocarpus</i>		
21							+	<i>Schima wallichii liukiensis</i>		
22							+	<i>Dammacanthus biflorus</i>		
23							+	<i>Tylophora japonica</i>		
24							+	<i>Euonymus tashiroi</i>		
25							+	<i>Lophatherum gracile</i>		
26							+	<i>Lasianthus fordii</i>		
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Vegetation		<i>Leucaena leucocephala</i> / <i>Miscanthus sinensis</i> community								

Vegetation Table

No.	I	LZ Name	LZ-Firebase Jones		30-Jun-11		Surveyor		
	Topography		Slope		Wind	Middle	Elevation	90 m	
					Sun Light	Middle-shadow	Direction	SW60	
					Soil Humidity	Suitable	Slope Degree	20 °	
							Survey Area	15 × 15 m	
	Layer	Height (m)	Cover (%)	Dominant species			Remarks		
	I Tree layer	~ 20	8				D-S means "Density" and "Sociability"		
	II Sub-Tree layer	~ 11	60						
	III Shrub layer	~ 5	40						
	IV Herb layer	~ 1.3	40						
	V Moss layer								
	D·S	I	D·S	II	D·S	III	D·S	IV	
1	4-4	<i>Castanopsis sieboldii</i>	2-2	<i>Meliosma lepidota squiculata</i>	2-3	<i>Ardisia quinquegona</i>	2-2	<i>Bolbitis subcordata</i>	
2	1-1	<i>Schima wallichii liukuensis</i>	2-2	<i>Schefflera octophylla</i>	1-1	<i>Alsophila podophylla</i>	1-1	<i>Alpinia intermedia</i>	
3	+	<i>Persea thunbergii</i>	1-1	<i>Neolitsea aciculata</i>	1-1	<i>Distylium racemosum</i>	1-1	<i>Diplazium donianum</i>	
4	+	<i>Pyrrosia lingua</i>	1-1	<i>Distylium racemosum</i>	1-1	<i>Randia canthioides</i>	+	<i>Alsophila podophylla</i>	
5	+	<i>Dendrobium okinawense</i>	1-1	<i>Randia canthioides</i>	+	<i>Camellia lutchuensis</i>	+	<i>Lasianthus wallichii</i>	
6	+	<i>Psychotria serpens</i>	+	<i>Coptosapelta diffusa</i>	+	<i>Ilex ficoidea</i>	+	<i>Desmodium leptopus</i>	
7	+	<i>Lepisorus thunbergianus</i>	+	<i>Adinandra ryukyuensis</i>	+	<i>Schima wallichii liukuensis</i>	+	<i>Cibotium barometz</i>	
8	+	<i>Diospyros morrisiana</i>	+	<i>Meliosma simplicifolia rigida</i>	+	<i>Schefflera octophylla</i>	+	<i>Lophatherum gracile</i>	
9	+	<i>Styrax japonicus</i>	+	<i>Camellia lutchuensis</i>	+	<i>Lasianthus fordii</i>	+	<i>Carex breviscapa</i>	
10	+	<i>Distylium racemosum</i>	+	<i>Asplenium setoi</i>	+	<i>Meliosma simplicifolia rigida</i>	+	<i>Ardisia pusilla</i>	
11			+	<i>Persea japonica</i>		<i>Psychotria rubra</i>	+	<i>Meliosma simplicifolia rigida</i>	
12			+	<i>Pyrrosia lingua</i>		<i>Antidesma japonicum</i>	+	<i>Psychotria rubra</i>	
13			+	<i>Psychotria serpens</i>		<i>Coptosapelta diffusa</i>	+	<i>Hydrangea liukuensis</i>	
14			+	<i>Turpinia ternata</i>			+	<i>Lindsaea orbiculata var. commixta</i>	
15			+	<i>Pileostegia viburnoides</i>			+	<i>Cinnamomum okinawense</i>	
16			+	<i>Lemnaphyllum spathulatum</i>			+	<i>Calanthe gracilis var. venusta</i>	
17			+	<i>Actinidia rufa</i>			+	<i>Pileostegia viburnoides</i>	
18			+	<i>Ilex goshiensis</i>			+	<i>Pronephrium triphyllum</i>	
19			+	<i>Ardisia sieboldii</i>			+	<i>Calanthe masuca</i>	
20							+	<i>Neolitsea aciculata</i>	
21							+	<i>Hoya carnea</i>	
22							+	<i>Castanopsis sieboldii</i>	
23							+	<i>Glochidion acuminatum</i>	
24							+	<i>Thelypteris glanduligera var. elatior</i>	
25							+	<i>Ardisia quinquegona</i>	
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Vegetation	<i>Castanopsis sieboldii</i> - <i>Illicium anisatum</i> association								

Vegetation Table

No.	2	LZ Name	LZ-Firebase Jones		30-Jun-11		Surveyor	
Topography		Top of Slope			Wind	Middle	Elevation	264 m
					Sun Light	High	Direction	SW60
					Soil Humidity	Suitable	Slope Degree	20°
							Survey Area	10 × 10 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 12	90				D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 7	50						
III Shrub layer	~ 3	40						
IV Herb layer	~ 1.8	25						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	4·4 <i>Castanopsis sieboldii</i>	2·2	<i>Syzygium buxifolium</i>	2·2	<i>Pleioblastus linearis</i>	2·2	<i>Blechnum orientale</i>	
2	1·1 <i>Schima wallichii liukuensis</i>	2·2	<i>Distylium racemosum</i>	1·1	<i>Ardisia quinquegona</i>	+	<i>Alsophila podophylla</i>	
3	1·1 <i>Persea thunbergii</i>	1·1	<i>Camellia sasanqua</i>	1·1	<i>Distylium racemosum</i>	+	<i>Lindsaea orbiculata var. commixta</i>	
4	+ <i>Schefflera octophylla</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	+	<i>Psychotria rubra</i>	+	<i>Ardisia quinquegona</i>	
5	+ <i>Styrax japonicus</i>	+	<i>Myrica rubra</i>	+	<i>Castanopsis sieboldii</i>	+	<i>Antidesma japonicum</i>	
6	+ <i>Rhus succedanea</i>	+	<i>Elaeocarpus japonicus</i>	+	<i>Tarenna gracilipes</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	
7	+ <i>Anodendron affine</i>	+	<i>Ilex liukuensis</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Psychotria serpens</i>	
8		+	<i>Ardisia quinquegona</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	+	<i>Lophatherum gracile</i>	
9		+	<i>Randia canthioides</i>	+	<i>Psychotria serpens</i>	+	<i>Symplocos glauca</i>	
10		+	<i>Schefflera octophylla</i>	+	<i>Ficus erecta</i>	+	<i>Randia canthioides</i>	
11		+	<i>Eurya japonica</i>	+	<i>Antidesma japonicum</i>	+	<i>Syzygium buxifolium</i>	
12		+	<i>Glochidion lanceolatum</i>	+	<i>Persea thunbergii</i>	+	<i>Lasianthus fordii</i>	
13		+	<i>Ilex ficoidea</i>	+	<i>Lemmaphyllum spathulatum</i>	+	<i>Persea thunbergii</i>	
14		+	<i>Stephanotis lutchuensis</i>	+	<i>Meliosma lepidota squumulata</i>	+	<i>Castanopsis sieboldii</i>	
15		+	<i>Trachelospermum asiaticum var. liukuense</i>			+	<i>Morinda umbellata</i>	
16		+	<i>Ilex integra</i>			+	<i>Cinnamomum doederleinii</i>	
17						+	<i>Dicranopteris linearis</i>	
18						+	<i>Euonymus lutchuensis</i>	
19						+	<i>Carex breviscapa</i>	
20						+	<i>Daphniphyllum glaucescens teismannii</i>	
21						+	<i>Diplospora dubia</i>	
22						+	<i>Elaeocarpus sylvestris</i>	
23						+	<i>Dendropanax trifidus</i>	
24						+	<i>Alpinia intermedia</i>	
25						+	<i>Mussaenda parviflora</i>	
26						+	<i>Stephanotis lutchuensis</i>	
27						+	<i>Zeuxine agyokuana</i>	
28						+	<i>Psychotria rubra</i>	
29						+	<i>Anodendron affine</i>	
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Vegetation	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association							

Vegetation Table

No.	I	LZ Name	LZ-Buzzard	03-Jun-11		Surveyor			
Topography		Slope		Wind	Middle	Elevation	77 m		
				Sun Light	Middle-shadow	Direction	SW20		
				Soil Humidity	Suitable	Sole Degree	34 °		
						Survey Area	15 × 15 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	~ 12	70				D-S means "Density" and "Sociability"			
II Sub-Tree layer	~ 8	40							
III Shrub layer	~ 4	50							
IV Herb layer	~ 1.2	30							
V Moss layer									
D·S	I	D·S	II	D·S	III	D·S	IV		
1	4·4 <i>Castanopsis sieboldii</i>	2·2	<i>Elaeocarpus japonicus</i>	2·2	<i>Ardisia quinquegona</i>	2·2	<i>Gibotium barometz</i>		
2	1·1 <i>Elaeocarpus sylvestris</i>	1·1	<i>Neolitsea aciculata</i>	2·2	<i>Pleioblastus linearis</i>	1·1	<i>Psychotria rubra</i>		
3	+ <i>Cinnamomum doederleinii</i>	1·1	<i>Symplocos lucida</i> var. <i>nakaharae</i>	1·1	<i>Randia canthioides</i>	+·2	<i>Ardisia quinquegona</i>		
4	+ <i>Schima wallichii liukuensis</i>		+ <i>Syzygium buxifolium</i>		+ <i>Lasianthus cyanocarpus</i>		+ <i>Ardisia crenata</i>		
5			+ <i>Distylium racemosum</i>		+ <i>Castanopsis sieboldii</i>		+ <i>Psychotria serpens</i>		
6			+ <i>Rhus succedanea</i>		+ <i>Psychotria rubra</i>		+ <i>Castanopsis sieboldii</i>		
7			+ <i>Ilex goshiensis</i>		+ <i>Psychotria serpens</i>		+ <i>Daphniphyllum glaucescens teijsmannii</i>		
8			+ <i>Diplospora dubia</i>		+ <i>Elaeocarpus japonicus</i>		+ <i>Syzygium buxifolium</i>		
9			+ <i>Symplocos glauca</i>		+ <i>Ilex goshiensis</i>		+ <i>Meliosma simplicifolia rigida</i>		
10			+ <i>Ilex liukuensis</i>		+ <i>Vaccinium wrightii</i>		+ <i>Persea thunbergii</i>		
11			+ <i>Gardenia jasminoides</i> f. <i>grandiflora</i>		+ <i>Distylium racemosum</i>		+ <i>Cinnamomum doederleinii</i>		
12			+ <i>Diospyros morrisiana</i>		+ <i>Ilex maximowicziana</i> var. <i>mutchagara</i>		+ <i>Rhaphiolepis indica</i>		
13			+ <i>Persea thunbergii</i>				+ <i>Antidesma japonicum</i>		
14			+ <i>Rapanea nerifolia</i>				+ <i>Schima wallichii liukuensis</i>		
15			+ <i>Morinda umbellata</i>				+ <i>Rhodomyrtus tomentosa</i>		
16							+ <i>Symplocos lucida</i> var. <i>nakaharae</i>		
17							+ <i>Rapanea nerifolia</i>		
18							+ <i>Pileostegia viburnoides</i>		
19							+ <i>Adiantum flabellulatum</i>		
20							+ <i>Lindsaea orbiculata</i> var. <i>commixta</i>		
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Vegetation	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association								

Vegetation Table

No.	2	LZ Name	LZ-Buzzard	03-Jun-11	Surveyor				
Topography		Flat Area			Wind	Middle	Elevation	83 m	
					Sun Light	Middle-shadow	Direction	-	
					Soil Humidity	Suitable	Slope Degree	0°	
					Survey Area		10 × 10 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	_____	_____	_____			D-S means "Density" and "Sociability"			
II Sub-Tree layer	~ 9	60	_____						
III Shrub layer	~ 3	90	_____						
IV Herb layer	~ 0.5	5	_____						
V Moss layer	_____	_____	_____						
D·S	II	D·S	III	D·S	IV	D·S			
1	3-3 <i>Pinus luchuensis</i>	5-5	<i>Pleioblastus linearis</i>	+·2	<i>Rapanea neriifolia</i>				
2	1-1 <i>Schima wallichii liukuensis</i>	+	<i>Smilax china</i> var. <i>kuru</i>	+·2	<i>Psychotria serpens</i>				
3	1-1 <i>Cinnamomum doederleinii</i>	+	<i>Psychotria serpens</i>	+	<i>Dicranopteris linearis</i>				
4	1-1 <i>Syzygium buxifolium</i>	+	<i>Pinus luchuensis</i>	+	<i>Glochidion zeylanicum</i>				
5	+ <i>Daphniphyllum glaucescens teijsmannii</i>			+	<i>Pleioblastus linearis</i>				
6	+ <i>Rapanea neriifolia</i>			+	<i>Symplocos lucida</i> var. <i>nakaharae</i>				
7				+	<i>Rhaphiolepis indica</i>				
8				+	<i>Daphniphyllum glaucescens teijsmannii</i>				
9				+	<i>Heterosmilax japonica</i>				
10				+	<i>Morinda umbellata</i>				
11				+	<i>Vaccinium wrightii</i>				
12				+	<i>Melastoma candidum</i>				
13				+	<i>Scleria terrestris</i>				
14				+	<i>Persea thunbergii</i>				
15				+	<i>Elaeocarpus japonicus</i>				
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Vegetation		<i>Pinus luchuensis</i> community							

Vegetation Table

No.	3	LZ Name	LZ-Buzzard	03-Jun-11	Surveyor			
Topography		Slope			Wind	Middle	Elevation	70 m
					Sun Light	High	Direction	SW70
					Soil Humidity	Suitable	Slope Degree	28 °
					Survey Area		15 × 15 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 16	80				D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 8	30						
III Shrub layer	~ 3.5	15						
IV Herb layer	~ 1.2	30						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	5-5 <i>Casuarina equisetifolia</i>	2-2	<i>Casuarina equisetifolia</i>	1-2	<i>Pleioblastus linearis</i>	2-2	<i>Nephrolepis hirsutula</i>	
2		1-1	<i>Mallotus japonicus</i>	1-1	<i>Persea thunbergii</i>	1-1	<i>Blechnum orientale</i>	
3		+	<i>Myrica rubra</i>	+	<i>Psychotria serpens</i>	+2	<i>Oplismenus compositus</i>	
4		+	<i>Morinda umbellata</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	+2	<i>Psychotria serpens</i>	
5		+	<i>Symplocos glauca</i>			+2	<i>Rubus sieboldii</i>	
6		+	<i>Psychotria serpens</i>			+	<i>Thelypteris parasitica</i>	
7		+	<i>Macaranga tanarius</i>			+	<i>Lasianthus cyanocarpus</i>	
8		+	<i>Schefflera octophylla</i>			+	<i>Miscanthus sinensis</i>	
9						+	<i>Pteris semipinnata</i>	
10						+	<i>Scleria terrestris</i>	
11						+	<i>Glochidion zeylanicum</i>	
12						+	<i>Bidens pilosa var. radiata f. decumbens</i>	
13						+	<i>Psychotria rubra</i>	
14						+	<i>Neolitsea aciculata</i>	
15						+	<i>Ficus erecta</i>	
16						+	<i>Persea thunbergii</i>	
17						+	<i>Rhus succedanea</i>	
18						+	<i>Callicarpa japonica var. luxurians</i>	
19						+	<i>Scirpus tematanus</i>	
20						+	<i>Elaeocarpus japonicus</i>	
21						+	<i>Cinnamomum doederleinii</i>	
22						+	<i>Melastoma candidum</i>	
23						+	<i>Casuarina equisetifolia</i>	
24						+	<i>Alpinia intermedia</i>	
25						+	<i>Eurya japonica</i>	
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Vegetation		Casuarina plantation						

Vegetation Table

No.	I	LZ Name	LZ-Cardinal	16-Aug-11	Surveyor			
	Topography	Top of Slope			Wind	Middle	Elevation	90 m
				Sun Light	Middle-shadow	Direction	SW60	
				Soil Humidity	Suitable	Slope Degree	20 °	
						Survey Area	15 × 15 m	
	Layer	Height (m)	Cover (%)	Dominant species		Remarks		
	I Tree layer	~ 12	80			D-S means "Density" and "Sociability"		
	II Sub-Tree layer	~ 7	70					
	III Shrub layer	~ 3	20					
	IV Herb layer	~ 0.6	30					
	V Moss layer							
	D·S	I	D·S	II	D·S	III	D·S	IV
1	4·4	<i>Castanopsis sieboldii</i>	3·3	<i>Syzygium buxifolium</i>	1·1	<i>Syzygium buxifolium</i>	1·1	<i>Lophatherum gracile</i>
2	+	<i>Schima wallichii liukuensis</i>	3·3	<i>Elaeocarpus japonicus</i>	1·1	<i>Randia canthioides</i>	1·1	<i>Gahnia tristis</i>
3	+	<i>Cinnamomum doederleinii</i>	1·1	<i>Rapanea nerifolia</i>	+	<i>Tarenna gracilipes</i>	1·1	<i>Cinnamomum doederleinii</i>
4	+	<i>Symplocos prunifolia</i>	1·1	<i>Diplospora dubia</i>	+	<i>Elaeocarpus japonicus</i>	+·2	<i>Psychotria serpens</i>
5	+	<i>Elaeocarpus japonicus</i>	+	<i>Smilax nervo-marginata</i>	+	<i>Symplocos stellaris</i>	+	<i>Ardisia quinquegona</i>
6			+	<i>Randia canthioides</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Castanopsis sieboldii</i>
7			+	<i>Castanopsis sieboldii</i>	+	<i>Persea thunbergii</i>	+	<i>Morinda umbellata</i>
8			+	<i>Ilex liukuensis</i>	+	<i>Ardisia quinquegona</i>	+	<i>Syzygium buxifolium</i>
9			+	<i>Persea thunbergii</i>	+	<i>Smilax nervo-marginata</i>	+	<i>Randia canthioides</i>
10			+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Pleioblastus linearis</i>	+	<i>Smilax china var. kuru</i>
11			+	<i>Ilex goshiensis</i>	+	<i>Camellia sasanqua</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>
12			+	<i>Camellia sasanqua</i>	+	<i>Castanopsis sieboldii</i>	+	<i>Rapanea nerifolia</i>
13					+	<i>Ilex liukuensis</i>	+	<i>Persea thunbergii</i>
14					+	<i>Diospyros morrisiana</i>	+	<i>Symplocos lucida var. nakaharae</i>
15					+	<i>Rhaphiolepis indica</i>	+	<i>Rhaphiolepis indica</i>
16					+	<i>Psychotria serpens</i>	+	<i>Smilax nervo-marginata</i>
17							+	<i>Symplocos glauca</i>
18							+	<i>Lasianthus cyanocarpus</i>
19							+	<i>Diospyros morrisiana</i>
20							+	<i>Schima wallichii liukuensis</i>
21							+	<i>Psychotria rubra</i>
22							+	<i>Camellia sasanqua</i>
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Vegetation		Castanopsis sieboldii / Tarenna gracilipes association						

1	3·3	<i>Pinus luchuensis</i>	3·3	<i>Sym</i>
2	1·1	<i>Schima wallichii lukuensis</i>	1·1	<i>Schi</i>
3			1·1	<i>Elaec</i>
4			+	<i>Rapa</i>
5			+	<i>Syzy</i>
6			+	<i>Denc</i>
7			+	<i>Pinu:</i>
8			+	<i>Pers</i>
9			+	<i>Gard</i>
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Vegetation				

LZ-Crane	13-Jun-11		Surveyor	
Slope	Wind	Middle	Elevation	86 m
	Sun Light	High	Direction	SW60
	Soil Humidity	Suitable	Slope Degree	40 °
			Survey Area	15 x 15 m
Dominant species			Remarks	
_____	_____	_____	D·S means "Density" and "Sociability"	
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_____	_____	_____		
_____	_____	_____		
_____	_____	_____		
_____	_____	_____		
II	D·S	III	D·S	IV

Vegetation Table

No.	I	LZ Name	LZ-Flamingo	11-Jun-11	Surveyor			
	Topography	Valley		Wind	Middle	Elevation	54 m	
	swamp			Sun Light	High	Direction	-	
				Soil Humidity	Swamp	Slope Degree	-	
						Survey Area	2 x 2 m	
	Layer	Height (m)	Cover (%)	Dominant species		Remarks		
	I Tree layer	_____	_____	_____	_____	D-S means "Density" and "Sociability"		
	II Sub-Tree layer	_____	_____	_____	_____			
	III Shrub layer	_____	_____	_____	_____			
	IV Herb layer	~ 1.3	100	_____	_____			
	V Moss layer	_____	_____	_____	_____			
	D-S	IV	D-S	D-S	D-S			
1	4-4	<i>Panicum repens</i>						
2	3-3	<i>Isachne globosa</i>						
3	2-2	<i>Thelypteris interrupta</i>						
4	+·2	<i>Wedelia chinensis</i>						
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Vegetation	<i>Panicum repens</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Flamingo	11-Jun-11	Surveyor			
	Topography	Slope		Wind	Middle	Elevation	59 m	
				Sun Light	High	Direction	SW80	
				Soil Humidity	Suitable	Slope Degree	25 °	
						Survey Area	10 × 10 m	
	Layer	Height (m)	Cover (%)	Dominant species		Remarks		
	I Tree layer	~ 11	70			D-S means "Density" and "Sociability"		
	II Sub-Tree layer	~ 7	60					
	III Shrub layer	~ 3	20					
	IV Herb layer	~ 0.8	30					
	V Moss layer							
	D-S	I	D-S	II	D-S	III	D-S	IV
1	3-3	<i>Schima wallichii liukuensis</i>	3-3	<i>Schima wallichii liukuensis</i>	2-2	<i>Syzygium buxifolium</i>	1-2	<i>Psychotria serpens</i>
2	2-2	<i>Cinnamomum doederleinii</i>	2-2	<i>Syzygium buxifolium</i>	+	<i>Ardisia crenata</i>	1-1	<i>Lophatherum gracile</i>
3	1-1	<i>Persea thunbergii</i>	1-1	<i>Elaeocarpus japonicus</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	1-1	<i>Dicranopteris linearis</i>
4	1-1	<i>Elaeocarpus japonicus</i>	+	<i>Rapanea nerifolia</i>	+	<i>Photinia wrightiana</i>	+	<i>Gahnia tristis</i>
5			+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Pittosporum tobira</i>	+	<i>Lindsaea orbiculata var. commixta</i>
6			+	<i>Diplospora dubia</i>	+	<i>Dendropanax trifidus</i>	+	<i>Glochidion zeylanicum</i>
7					+	<i>Rapanea nerifolia</i>	+	<i>Cinnamomum doederleinii</i>
8					+	<i>Melastoma candidum</i>	+	<i>Persea thunbergii</i>
9					+	<i>Psychotria serpens</i>	+	<i>Morinda umbellata</i>
10					+	<i>Ilex liukuensis</i>	+	<i>Melastoma candidum</i>
11					+	<i>Smilax china var. kuru</i>	+	<i>Scleria terrestris</i>
12							+	<i>Rhaphiolepis indica</i>
13							+	<i>Syzygium buxifolium</i>
14							+	<i>Daphniphyllum glaucescens teijsmannii</i>
15							+	<i>Dendropanax trifidus</i>
16							+	<i>Smilax nervo-marginata</i>
17							+	<i>Symplocos lucida var. nakaharae</i>
18							+	<i>Ficus erecta</i>
19							+	<i>Psychotria rubra</i>
20							+	<i>Antidesma japonicum</i>
21							+	<i>Elaeocarpus sylvestris</i>
22							+	<i>Diplospora dubia</i>
23							+	<i>Rubus sieboldii</i>
24							+	<i>Elaeagnus thunbergii</i>
25							+	<i>Lindsaea heterophylla</i>
26							+	<i>Ilex maximowicziana var. mutchagara</i>
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Vegetation	<i>Psychotria rubra</i> - <i>Schima wallichii</i> ssp. <i>liukuensis</i> community							

Vegetation Table

No.	3	LZ Name	LZ-Flamingo		11-Jun-11		Surveyor			
Topography		Top of Slope			Wind	Middle	Elevation	58 m		
					Sun Light	High	Direction	SW40		
					Soil Humidity	Suitable	Slope Degree	25°		
							Survey Area	10 × 10 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks				
I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"				
II Sub-Tree layer	~ 8	60	_____	_____	_____					
III Shrub layer	~ 2.5	30	_____	_____	_____					
IV Herb layer	~ 1.2	80	_____	_____	_____					
V Moss layer	_____	_____	_____	_____	_____					
D·S	II	D·S	III	D·S	IV	D·S				
1	3-3 <i>Pinus luchuensis</i>	2-2	<i>Daphniphyllum glaucescens teijsmannii</i>	4-4	<i>Dicranopteris linearis</i>					
2	2-2 <i>Persea thunbergii</i>	1-1	<i>Pleioblastus linearis</i>	2-2	<i>Miscanthus sinensis</i>					
3	+ <i>Dendropanax trifidus</i>	+	<i>Schima wallichii liukuensis</i>	1-1	<i>Scirpus ternatanus</i>					
4	+ <i>Symplocos lucida</i> var. <i>nakaharae</i>	+	<i>Rhus succedanea</i>	+	<i>Melastoma candidum</i>					
5	+ <i>Syzygium buxifolium</i>	+	<i>Glochidion zeylanicum</i>	+	<i>Farfugium japonicum</i>					
6	+ <i>Elaeocarpus sylvestris</i>	+	<i>Cinnamomum doederleinii</i>	+	<i>Dianella ensifolia</i> f. <i>reemulifera</i>					
7	+ <i>Psychotria serpens</i>	+	<i>Eurya japonica</i>	+	<i>Ilex maximowicziana</i> var. <i>mutchagara</i>					
8		+	<i>Dendropanax trifidus</i>	+	<i>Thelypteris acuminata</i>					
9		+	<i>Lygodium japonicum</i> var. <i>microstachyum</i>	+	<i>Nephrolepis auriculata</i>					
10		+	<i>Rapanea neriiifolia</i>	+	<i>Phaius tankervilleae</i>					
11		+	<i>Ficus erecta</i>	+	<i>Imperata cylindrica</i> var. <i>major</i>					
12		+	<i>Smilax china</i> var. <i>kuru</i>	+	<i>Goodyera procera</i>					
13		+	<i>Psychotria serpens</i>	+	<i>Persea thunbergii</i>					
14		+	<i>Rhaphiolepis indica</i>	+	<i>Lygodium japonicum</i> var. <i>microstachyum</i>					
15				+	<i>Psychotria serpens</i>					
16				+	<i>Glochidion zeylanicum</i>					
17				+	<i>Smilax china</i> var. <i>kuru</i>					
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Vegetation		<i>Pinus luchuensis</i> community								

Vegetation Table

No.	I	LZ Name	LZ-Gander		16-Aug-11		Surveyor	
	Topography	Top of Slope			Wind	Middle	Elevation	65 m
					Sun Light	Middle-shadow	Direction	SW80
					Soil Humidity	Suitable	Slope Degree	26 °
							Survey Area	15 × 15 m
	Layer	Height (m)	Cover (%)	Dominant species			Remarks	
	I Tree layer	~ 12	80				D-S means "Density" and "Sociability"	
	II Sub-Tree layer	~ 8	60					
	III Shrub layer	~ 3	30					
	IV Herb layer	~ 1	30					
	V Moss layer							
	D·S	I	D·S	II	D·S	III	D·S	IV
1	4·4	<i>Castanopsis sieboldii</i>	3·3	<i>Elaeocarpus japonicus</i>	2·2	<i>Ardisia quinquegona</i>	3·3	<i>Gibotium barometz</i>
2	1·1	<i>Quercus miyagii</i>	2·2	<i>Syzygium buxifolium</i>	1·1	<i>Distylium racemosum</i>	+	<i>Ardisia quinquegona</i>
3	1·1	<i>Diospyros morrisiana</i>	1·1	<i>Distylium racemosum</i>	+	<i>Syzygium buxifolium</i>	+	<i>Persea thunbergii</i>
4	+	<i>Elaeocarpus japonicus</i>	+	<i>Rhus succedanea</i>	+	<i>Randia canthioides</i>	+	<i>Alsophila podophylla</i>
5	+	<i>Rhaphiolepis indica</i>	+	<i>Randia canthioides</i>	+	<i>Symplocos lucida</i> var. <i>nakaharae</i>	+	<i>Lophatherum gracile</i>
6	+	<i>Cinnamomum doederleinii</i>	+	<i>Diospyros morrisiana</i>	+	<i>Vaccinium wrightii</i>	+	<i>Microtropis japonica</i>
7			+	<i>Symplocos lucida</i> var. <i>nakaharae</i>	+	<i>Tarenna gracilipes</i>	+	<i>Lindsaea orbiculata</i> var. <i>commixta</i>
8			+	<i>Meliosma simplicifolia rigida</i>	+	<i>Ilex liukuensis</i>	+	<i>Psychotria serpens</i>
9			+	<i>Ardisia quinquegona</i>	+	<i>Pleioblastus linearis</i>	+	<i>Castanopsis sieboldii</i>
10			+	<i>Schefflera octophylla</i>	+	<i>Castanopsis sieboldii</i>	+	<i>Rhaphiolepis indica</i>
11			+	<i>Schima wallichii liukuensis</i>	+	<i>Ilex goshiensis</i>	+	<i>Gahnia tristis</i>
12			+	<i>Rapanea nerifolia</i>	+	<i>Persea thunbergii</i>	+	<i>Camellia sasanqua</i>
13			+	<i>Castanopsis sieboldii</i>	+	<i>Lasianthus cyanocarpus</i>	+	<i>Meliosma simplicifolia</i> ssp. <i>rigida</i>
14			+	<i>Psychotria serpens</i>	+	<i>Psychotria serpens</i>	+	<i>Trechospermum asiaticum</i> var. <i>liukuense</i>
15			+	<i>Ilex liukuensis</i>	+	<i>Elaeocarpus japonicus</i>	+	<i>Dicranopteris linearis</i>
16			+	<i>Ilex goshiensis</i>	+	<i>Antidesma japonicum</i>	+	<i>Elaeocarpus japonicus</i>
17							+	<i>Smilax china</i> var. <i>kuru</i>
18							+	<i>Cheiropleuria bicuspis</i>
19							+	<i>Cinnamomum doederleinii</i>
20							+	<i>Psychotria rubra</i>
21							+	<i>Daphniphyllum glaucescens teijsmannii</i>
22							+	<i>Smilax nervo-marginata</i>
23							+	<i>Ardisia crenata</i>
24							+	<i>Anodendron affine</i>
25							+	<i>Neolitsea aciculata</i>
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Vegetation	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association							

Vegetation Table

No.	I	LZ Name	LZ-Goose	5-Jul-11		Surveyor		
Topography		Slope			Wind	Middle	Elevation	123 m
					Sun Light	Middle-shadow	Direction	SW80
					Soil Humidity	Suitable	Slope Degree	30°
							Survey Area	15 × 15 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 13	70				D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 7	50						
III Shrub layer	~ 2.5	20						
IV Herb layer	~ 1.2	40						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	4·4 <i>Castanopsis sieboldii</i>	3·3	<i>Elaeocarpus japonicus</i>	1·1	<i>Persea thunbergii</i>	3·3	<i>Dicranopteris linearis</i>	
2	2·2 <i>Schima wallichii liukuensis</i>	1·1	<i>Rapanea nerifolia</i>	1·1	<i>Ardisia quinquegona</i>	1·1	<i>Cibotium barometz</i>	
3	+ <i>Diospyros morrisiana</i>	+	<i>Persea thunbergii</i>	+	<i>Castanopsis sieboldii</i>	+·2	<i>Psychotria serpens</i>	
4		+	<i>Ilex liukuensis</i>	+	<i>Antidesma japonicum</i>		<i>Alsophila podophylla</i>	
5		+	<i>Schima wallichii liukuensis</i>	+	<i>Rapanea nerifolia</i>	+	<i>Alpinia intermedia</i>	
6		+	<i>Ardisia quinquegona</i>	+	<i>Ficus erecta</i>	+	<i>Rhus succedanea</i>	
7		+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Persea thunbergii</i>	
8		+	<i>Schefflera octophylla</i>	+	<i>Ficus erecta</i>	+	<i>Ardisia quinquegona</i>	
9				+	<i>Turpinia ternata</i>	+	<i>Rapanea nerifolia</i>	
10				+	<i>Cibotium barometz</i>	+	<i>Lindsaea orbiculata var. commixta</i>	
11				+	<i>Psychotria serpens</i>	+	<i>Coptosapelta diffusa</i>	
12				+	<i>Coptosapelta diffusa</i>	+	<i>Castanopsis sieboldii</i>	
13							<i>Cinnamomum doederleinii</i>	
14							<i>Smilax china var. kuru</i>	
15							<i>Gahnia tristis</i>	
16							<i>Antidesma japonicum</i>	
17							<i>Neolitsea aciculata</i>	
18							<i>Rhaphiolepis indica</i>	
19							<i>Smilax nervo-marginata</i>	
20							<i>Ardisia crenata</i>	
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Vegetation	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association							

Vegetation Table

No.	I	LZ Name	LZ-Heron		14-Jun-11		Surveyor		
	Topography	Top of Hill			Wind	Middle	Elevation	85 m	
					Sun Light	High	Direction	SW70	
					Soil Humidity	Suitable	Slope Degree	13 °	
							Survey Area	2 × 2 m	
	Layer	Height (m)	Cover (%)	Dominant species			Remarks		
	I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"		
	II Sub-Tree layer	_____	_____	_____	_____	_____			
	III Shrub layer	~ 1.4	50	_____	_____	_____			
	IV Herb layer	~ 0.4	80	_____	_____	_____			
	V Moss layer	_____	_____	_____	_____	_____			
	D·S	III	D·S	IV	D·S		D·S		
1	3-3	<i>Pleioblastus linearis</i>	4-4	<i>Dicranopteris linearis</i>					
2	1-1	<i>Syzygium buxifolium</i>	1-2	<i>Lycopodium cernuum</i>					
3	+	<i>Schima wallichii lukuensis</i>	+·2	<i>Aristida takeoi</i>					
4			+	<i>Gahnia tristis</i>					
5			+	<i>Vaccinium wrightii</i>					
6			+	<i>Cassytha filiformis var. duipraticola</i>					
7			+	<i>Syzygium buxifolium</i>					
8			+	<i>Psychotria serpens</i>					
9			+	<i>Drosera spathulata</i>					
10			+	<i>Rhynchospora rubra</i>					
11			+	<i>Lindsaea orbiculata var. commixta</i>					
12			+	<i>Rapanea nerifolia</i>					
13			+	<i>Schima wallichii lukuensis</i>					
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Vegetation		<i>Pleioblastus linearis</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Heron		14-Jun-11		Surveyor	
	Topography	Slope		Wind	Middle	Elevation	78 m	
				Sun Light	High	Direction	SW70	
				Soil Humidity	Suitable	Slope Degree	25 °	
						Survey Area	15 × 15 m	
	Layer	Height (m)	Cover (%)	Dominant species			Remarks	
	I Tree layer	~ 13	80				D·S means "Density" and "Sociability"	
	II Sub-Tree layer	~ 7	50					
	III Shrub layer	~ 3	10					
	IV Herb layer	~ 0.5	30					
	V Moss layer							
	D·S	I	D·S	II	D·S	III	D·S	IV
1	3-3	<i>Pinus luchuensis</i>	2-2	<i>Schima wallichii liukuensis</i>	1-1	<i>Elaeocarpus japonicus</i>	3-3	<i>Dicranopteris linearis</i>
2	2-2	<i>Schima wallichii liukuensis</i>	2-2	<i>Syzygium buxifolium</i>	+	<i>Syzygium buxifolium</i>	+ 2	<i>Rapanea nerifolia</i>
3	1-1	<i>Syzygium buxifolium</i>	1-1	<i>Symplocos lucida var. nakaharae</i>	+	<i>Pleoblastus linearis</i>	+	<i>Gahnia tristis</i>
4	1-1	<i>Symplocos lucida var. nakaharae</i>	+	<i>Rapanea nerifolia</i>	+	<i>Euonymus luchuensis</i>	+	<i>Smilax nervo-marginata</i>
5	+	<i>Coptosapelta diffusa</i>	+	<i>Persea thunbergii</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Rhaphiolepis indica</i>
6	+	<i>Smilax nervo-marginata</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Coptosapelta diffusa</i>	+	<i>Persea thunbergii</i>
7			+	<i>Dendropanax trifidus</i>			+	<i>Syzygium buxifolium</i>
8			+	<i>Cinnamomum doederleinii</i>			+	<i>Smilax china var. kuru</i>
9			+	<i>Elaeocarpus japonicus</i>			+	<i>Tylophora japonica</i>
10			+	<i>Ilex maximowicziana var. mutchagara</i>			+	<i>Lindsaea orbiculata var. commixta</i>
11							+	<i>Psychotria serpens</i>
12							+	<i>Daphniphyllum glaucescens teijsmannii</i>
13							+	<i>Elaeocarpus japonicus</i>
14							+	<i>Ilex maximowicziana var. mutchagara</i>
15							+	<i>Ardisia crenata</i>
16							+	<i>Rhus succedanea</i>
17							+	<i>Coptosapelta diffusa</i>
18							+	<i>Schima wallichii liukuensis</i>
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Vegetation	Pinus luchuensis community							

Vegetation Table

No.	3	LZ Name	LZ-Heron		14-Jun-11		Surveyor		
Topography		Flat Area				Wind	Middle	Elevation	77 m
						Sun Light	High	Direction	-
						Soil Humidity	Suitable	Slope Degree	-
								Survey Area	10 × 10 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	~ 16	60				D-S means "Density" and "Sociability"			
II Sub-Tree layer	~ 8	60							
III Shrub layer	~ 3	30							
IV Herb layer	~ 0.9	50							
V Moss layer									
D-S	I	D-S	II	D-S	III	D-S	IV		
1	4-4	2-2	1-1	1-1	1-1	3-3			
	<i>Casuarina equisetifolia</i>	<i>Leucaena leucocephala</i>	<i>Morus australis</i>	<i>Syzygium buxifolium</i>	<i>Morus australis</i>	<i>Oplismenus compositus</i>			
2		1-1	<i>Morus australis</i>	1-1	<i>Syzygium buxifolium</i>	1-1	<i>Thelypteris parasitica</i>		
3		1-1	<i>Elaeocarpus sylvestris</i>	1-1	<i>Ficus erecta</i>	+	<i>Miscanthus sinensis</i>		
4		1-1	<i>Persea thunbergii</i>	+	<i>Bischofia javanica</i>	+	<i>Alocasia odora</i>		
5		+	<i>Actinidia rufa</i>	+	<i>Psidium cattleianum</i>	+	<i>Glochidion zeylanicum</i>		
6		+	<i>Ficus benguetensis</i>	+	<i>Ficus septica</i>	+	<i>Elaeocarpus sylvestris</i>		
7		+	<i>Ficus erecta</i>	+	<i>Pittosporum tobira</i>	+	<i>Rubus sieboldii</i>		
8		+	<i>Glochidion zeylanicum</i>	+	<i>Morinda umbellata</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>		
9				+	<i>Ardisia quinquegona</i>	+	<i>Elaeocarpus japonicus</i>		
10				+	<i>Persea thunbergii</i>	+	<i>Leucaena leucocephala</i>		
11				+	<i>Leucaena leucocephala</i>	+	<i>Scirpus teratanus</i>		
12				+	<i>Rhaphiolepis indica</i>	+	<i>Morus australis</i>		
13				+	<i>Maesa montana</i>	+	<i>Stephania japonica</i>		
14				+	<i>Euonymus lutchuensis</i>	+	<i>Paederia scandens</i>		
15				+	<i>Neolitsea sericea</i>	+	<i>Cinnamomum doederleinii</i>		
16				+	<i>Pueraria montana</i>	+	<i>Polygala paniculata</i>		
17				+	<i>Meliosma simplicifolia rigida</i>	+	<i>Thelypteris torresiana</i>		
18						+	<i>Elaeagnus thunbergii</i>		
19						+	<i>Smilax china var. kuru</i>		
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Vegetation	Casuarina plantation								

Vegetation Table

No.	I	LZ Name	LZ-Kin Blue		15-Jun-11		Surveyor		
	Topography	Flat Area		Wind	Strong	Elevation	3 m		
	Sandy Coast			Sun Light	High	Direction	-		
				Soil Humidity	Dry	Slope Degree	-		
						Survey Area	2 x 2 m		
	Layer	Height (m)	Cover (%)	Dominant species		Remarks			
	I Tree layer	_____	_____	_____		D-S means "Density" and "Sociability"			
	II Sub-Tree layer	_____	_____	_____					
	III Shrub layer	_____	_____	_____					
		_____	_____	_____					
	IV Herb layer	~ 0.3	90	_____					
	V Moss layer	_____	_____	_____					
	D-S	IV	D-S		D-S		D-S		
1	4-4	<i>Ipomoea pes-caprae brasiliensis</i>							
2	3-3	<i>Thuarea involuta</i>							
3	1-1	<i>Vigna marina</i>							
4	+	<i>Lysimachia mauritiana</i>							
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Vegetation	<i>Ipomea pes-caprae</i> / <i>Thuarea involuta</i> community								

Vegetation Table

No.	2	LZ Name	LZ-Kin Blue	15-Jun-11	Surveyor		
Topography		Flat Area		Wind	Strong	Elevation	4 m
		Sandy Coast		Sun Light	High	Direction	SW20
				Soil Humidity	Dry	Slope Degree	10 °
				Survey Area		4 x 4 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks	
I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"	
II Sub-Tree layer	_____	_____	_____	_____	_____		
III Shrub layer	~ 4	100	_____	_____	_____		
IV Herb layer	~ 0.1	1	_____	_____	_____		
V Moss layer	_____	_____	_____	_____	_____		
D-S	III	D-S	IV	D-S	D-S		
1	5-S <i>Pandanus odoratissimus</i>	+	<i>Pandanus odoratissimus</i>				
2	+ <i>Scaevola taccada</i>						
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Vegetation		<i>Pandanus odoratissimus</i> community					

Vegetation Table

No.	3	LZ Name	LZ-Kin Blue	15-Jun-11	Surveyor	
Topography		Flat Area		Wind	Middle	Elevation 6 m
		Sandy Coast		Sun Light	High	Direction -
				Soil Humidity	Suitable	Slope Degree -
				Survey Area		8 x 8 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks
I Tree layer	_____	_____	_____	_____	_____	D·S means "Density" and "Sociability"
II Sub-Tree layer	~ 7	70	_____	_____	_____	
III Shrub layer	~ 2.5	30	_____	_____	_____	
IV Herb layer	~ 1	60	_____	_____	_____	
V Moss layer	_____	_____	_____	_____	_____	
D·S	II	D·S	III	D·S	IV	D·S
1	4·4 <i>Leucaena leucocephala</i>	2·2	<i>Ficus erecta</i>	4·4	<i>Alocasia odora</i>	
2	2·2 <i>Morus australis</i>	1·1	<i>Morus australis</i>	1·2	<i>Leucaena leucocephala</i>	
3	+ <i>Pittosporum tobira</i>	+·2	<i>Euonymus japonicus</i>	+	<i>Pittosporum tobira</i>	
4	+ <i>Litsea japonica</i>	+	<i>Smilax sebeana</i>	+	<i>Ipomoea acuminata</i>	
5	+ <i>Euonymus japonicus</i>	+	<i>Litsea japonica</i>	+	<i>Solanum seafortianum</i>	
6	+ <i>Cinnamomum pseudo-pedunculatum</i>			+	<i>Litsea japonica</i>	
7	+ <i>Persea thunbergii</i>			+	<i>Alpinia zerumbet</i>	
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Vegetation		<i>Leucaena leucocephala</i> community				

Vegetation Table

No.	4	LZ Name	LZ-Kin Blue		15-Jun-11		Surveyor	
Topography		Flat Area			Wind	Middle	Elevation	5 m
					Sun Light	High	Direction	-
					Soil Humidity	Suitable	Slope Degree	-
							Survey Area	15 × 15 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 17	60				D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 9	60						
III Shrub layer	~ 3	20						
IV Herb layer	~ 1	60						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	4-4 <i>Casuarina equisetifolia</i>	3-3	<i>Leucaena leucocephala</i>	2-2	<i>Morus australis</i>	3-3	<i>Alocasia odora</i>	
2		3-3	<i>Morus australis</i>	+	<i>Leucaena leucocephala</i>	1-1	<i>Thelypteris interrupta</i>	
3		+	<i>Ipomoea acuminata</i>	+	<i>Persea thunbergii</i>	1-1	<i>Paspalum conjugatum</i>	
4		+	<i>Ficus septica</i>	+	<i>Pittosporum tobira</i>	+ 2	<i>Ipomoea acuminata</i>	
5				+	<i>Ficus erecta</i>	+	<i>Thelypteris acuminata</i>	
6				+	<i>Ipomoea acuminata</i>	+	<i>Oplismenus compositus</i>	
7				+	<i>Elaeocarpus sylvestris</i>	+	<i>Solanum seaforthianum</i>	
8				+	<i>Paederia scandens</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	
9						+	<i>Ficus septica</i>	
10						+	<i>Stephania japonica</i>	
11						+	<i>Lygodium japonicum var. microstachyum</i>	
12						+	<i>Persea thunbergii</i>	
13						+	<i>Ranunculus sieboldii</i>	
14						+	<i>Miscanthus sinensis</i>	
15						+	<i>Trichosanthes ovigera</i>	
16						+	<i>Paederia scandens</i>	
17						+	<i>Alpinia zerumbet</i>	
18						+	<i>Carmona retusa</i>	
19						+	<i>Litsea japonica</i>	
20						+	<i>Ficus erecta</i>	
21						+	<i>Pteris ryukyuensis</i>	
22						+	<i>Morus australis</i>	
23						+	<i>Elaeocarpus sylvestris</i>	
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Vegetation		Casuarina plantation						

Vegetation Table

No.	I	LZ Name	LZ-Kin Red		18-Jun-11		Surveyor
	Topography	Top of Slope			Wind	Middle	Elevation 9 m
					Sun Light	High	Direction SE40
					Soil Humidity	Suitable	Slope Degree 30 °
							Survey Area 2 × 2 m
	Layer	Height (m)	Cover (%)	Dominant species		Remarks	
	I Tree layer	_____	_____	_____		D-S means "Density" and "Sociability"	
	II Sub-Tree layer	_____	_____	_____			
	III Shrub layer	_____	_____	_____			
		_____	_____	_____			
	IV Herb layer	~ 0.9	90	_____			
	V Moss layer	_____	_____	_____			
	D-S	IV	D-S		D-S		D-S
1	3-3	<i>Miscanthus sinensis</i>					
2	2-2	<i>Melastoma candidum</i>					
3	1-1	<i>Rhaphiolepis indica</i>					
4	1-1	<i>Persea thunbergii</i>					
5	1-1	<i>Psychotria serpens</i>					
6	+	<i>Syzygium buxifolium</i>					
7	+	<i>Rhodomyrtus tomentosa</i>					
8	+	<i>Lygodium japonicum</i> var. <i>microstachyum</i>					
9	+	<i>Sphagneticola trilobata</i>					
10	+	<i>Oplismenus compositus</i>					
11	+	<i>Smilax sebeana</i>					
12	+	<i>Carex brunnea</i>					
13	+	<i>Eurya japonica</i>					
14	+	<i>Pteridium aquilinum</i> var. <i>latiusculum</i>					
15	+	<i>Ischaemum aureum</i>					
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Vegetation	<i>Leucaena leucocephala</i> / <i>Miscanthus sinensis</i> community						

Vegetation Table

No.	2	LZ Name	LZ-Kin	Red	18-Jun-11	Surveyor		
Topography		Slope			Wind	Middle	Elevation	19 m
					Sun Light	High	Direction	SE30
					Soil Humidity	Suitable	Slope Degree	30 °
							Survey Area	15 × 15 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 17	60				D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 7	30						
III Shrub layer	~ 3	50						
IV Herb layer	~ 0.5	20						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	4·4 <i>Casuarina equisetifolia</i>	2·2 <i>Casuarina equisetifolia</i>	3·3 <i>Pandanus odoratissimus</i>	1·1 <i>Dianella ensifolia</i> f. <i>reemulifera</i>				
2		1·1 <i>Symplocos lucida</i> var. <i>nakaharai</i>	1·1 <i>Pittosporum tobira</i>	1·1 <i>Dicranopteris linearis</i>				
3		+ <i>Persea thunbergii</i>	1·1 <i>Symplocos lucida</i> var. <i>nakaharai</i>	+ 2 <i>Pandanus odoratissimus</i>				
4		+ <i>Rhus succedanea</i>	+ <i>Eurya japonica</i>	+ <i>Leucaena leucocephala</i>				
5		+ <i>Leucaena leucocephala</i>	+ <i>Ligustrum japonica</i>	+ <i>Farfugium japonicum</i>				
6		+ <i>Psychotria serpens</i>	+ <i>Elaeagnus thunbergii</i>	+ <i>Psychotria serpens</i>				
7		+ <i>Gardenia jasminoides</i> f. <i>grandiflora</i>	+ <i>Persea thunbergii</i>	+ <i>Lygodium japonicum</i> var. <i>microstachyum</i>				
8				+ <i>Rhaphiolepis indica</i>				
9				+ <i>Pteridium aquilinum</i> var. <i>latiusculum</i>				
10				+ <i>Miscanthus sinensis</i>				
11				+ <i>Ficus erecta</i>				
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Vegetation		Casuarina plantation						

Vegetation Table

No.	3	LZ Name	LZ-Kin Red	18-Jun-11	Surveyor			
Topography		Slope			Wind	Strong	Elevation	8 m
					Sun Light	High	Direction	SW60
					Soil Humidity	Suitable	Slope Degree	20 °
					Survey Area		5 × 5 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"		
II Sub-Tree layer	_____	_____	_____	_____	_____			
III Shrub layer	~ 4.5	80	_____	_____	_____			
IV Herb layer	~ 0.4	1	_____	_____	_____			
V Moss layer	_____	_____	_____	_____	_____			
D-S	III	D-S	IV	D-S	D-S			
1	5-S <i>Pandanus odoratissimus</i>	+	<i>Pueraria montana</i>					
2	+ <i>Pueraria montana</i>							
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Vegetation		<i>Pandanus odoratissimus</i> community						

Vegetation Table

No.	I	LZ Name	LZ-Magpie	09-Jun-11	Surveyor			
Topography		Slope			Wind	Middle	Elevation	m
					Sun Light	High	Direction	NW80
					Soil Humidity	Suitable	Slope Degree	30°
					Survey Area		12 × 12 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 11	70				D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 8	60						
III Shrub layer	~ 3	30						
IV Herb layer	~ 0.5	30						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	3-3 <i>Cinnamomum doederleinii</i>	2-2	<i>Syzygium buxifolium</i>	3-3	<i>Pleoblastus linearis</i>	2-3	<i>Psychotria serpens</i>	
2	2-2 <i>Elaeocarpus japonicus</i>	2-2	<i>Schima wallichii liukuensis</i>	+	<i>Elaeocarpus japonicus</i>	1-1	<i>Dicranopteris linearis</i>	
3	1-1 <i>Schima wallichii liukuensis</i>	2-2	<i>Elaeocarpus japonicus</i>	+	<i>Ternstroemia gymnanthera</i>	+	<i>Syzygium buxifolium</i>	
4	+ <i>Pinus luchuensis</i>	1-1	<i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Ilex goshiensis</i>	+	<i>Persea thunbergii</i>	
5		+	<i>Rapanea neriifolia</i>	+	<i>Psychotria serpens</i>	+	<i>Pleoblastus linearis</i>	
6		+	<i>Dendropanax trifidus</i>			+	<i>Morinda umbellata</i>	
7						+	<i>Rapanea neriifolia</i>	
8						+	<i>Pittosporum tobira</i>	
9						+	<i>Gahnia tristis</i>	
10						+	<i>Rhaphiolepis indica</i>	
11						+	<i>Daphniphyllum glaucescens teijsmannii</i>	
12						+	<i>Smilax nervo-marginata</i>	
13						+	<i>Castanopsis sieboldii</i>	
14						+	<i>Cinnamomum doederleinii</i>	
15						+	<i>Smilax china var. kuru</i>	
16						+	<i>Lindsaea orbiculata var. commixta</i>	
17						+	<i>Ardisia crenata</i>	
18						+	<i>Antidesma japonicum</i>	
19						+	<i>Symplocos lucida var. nakaharae</i>	
20						+	<i>Dendropanax trifidus</i>	
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Vegetation	<i>Psychotria rubra</i> - <i>Schima wallichii</i> ssp. <i>liukuensis</i> community							

Vegetation Table

No.	I	LZ Name	LZ-Petrel	10-Jun-11		Surveyor	
	Topography	Slope		Wind	Middle	Elevation	68 m
				Sun Light	High	Direction	W
				Soil Humidity	Suitable	Slope Degree	25°
						Survey Area	10 × 10 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks	
I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"	
II Sub-Tree layer	~ 8	90	_____	_____	_____		
III Shrub layer	~ 3	10	_____	_____	_____		
IV Herb layer	~ 0.4	3	_____	_____	_____		
V Moss layer	_____	_____	_____	_____	_____		
D·S	II	D·S	III	D·S	IV	D·S	
1	3-3 <i>Cinnamomum doederleinii</i>	1-1	<i>Elaeocarpus japonicus</i>	+	<i>Psychotria serpens</i>		
2	2-2 <i>Elaeocarpus japonicus</i>	+	<i>Syzygium buxifolium</i>	+	<i>Smilax china var. kuru</i>		
3	2-2 <i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Psychotria serpens</i>	+	<i>Ardisia crenata</i>		
4	1-1 <i>Syzygium buxifolium</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	+	<i>Cinnamomum doederleinii</i>		
5	1-1 <i>Rapanea nerifolia</i>	+	<i>Smilax china var. kuru</i>	+	<i>Lindsaea orbiculata var. commixta</i>		
6	+	<i>Ilex liukuensis</i>			+	<i>Daphniphyllum glaucescens teijsmannii</i>	
7	+	<i>Ternstroemia gymnanthera</i>			+	<i>Carex breviscapa</i>	
8					+	<i>Gardenia jasminoides f. grandiflora</i>	
9					+	<i>Persea thunbergii</i>	
10					+	<i>Lasianthus cyanocarpus</i>	
11					+	<i>Rhaphiolepis indica</i>	
12					+	<i>Gahnia tristis</i>	
13					+	<i>Dicranopteris linearis</i>	
14					+	<i>Syzygium buxifolium</i>	
15					+	<i>Smilax nervo-marginata</i>	
16					+	<i>Pittosporum tobira</i>	
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Vegetation	<i>Psychotria rubra</i> - <i>Schima wallidhii</i> ssp. <i>liukuensis</i> community
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Vegetation Table

No.	2	LZ Name	LZ-Petrel	10-Jun-11	Surveyor			
Topography		Slope			Wind	Middle	Elevation	70 m
					Sun Light	High	Direction	NE40
					Soil Humidity	Suitable	Slope Degree	23 °
					Survey Area		12 × 12 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 12	70				D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 7	40						
III Shrub layer	~ 2.5	30						
IV Herb layer	~ 0.9	10						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	4·4 <i>Castanopsis sieboldii</i>	2·2	<i>Elaeocarpus japonicus</i>	2·2	<i>Ardisia quinquegona</i>	1·1	<i>Psychotria serpens</i>	
2		1·1	<i>Castanopsis sieboldii</i>	1·1	<i>Elaeocarpus japonicus</i>	+·2	<i>Lophatherum gracile</i>	
3		1·1	<i>Syzygium buxifolium</i>	+	<i>Syzygium buxifolium</i>	+	<i>Psychotria rubra</i>	
4		+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Osmanthus marginatus</i>	+	<i>Dendropanax trifidus</i>	
5		+	<i>Dendropanax trifidus</i>	+	<i>Ilex goshiensis</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	
6		+	<i>Elaeocarpus sylvestris</i>	+	<i>Antidesma japonicum</i>	+	<i>Elaeocarpus japonicus</i>	
7		+	<i>Diplospora dubia</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Cibotium barometz</i>	
8				+	<i>Castanopsis sieboldii</i>	+	<i>Adiantum flabellulatum</i>	
9				+	<i>Diplospora dubia</i>	+	<i>Dryopteris sordidipes</i>	
10				+	<i>Psychotria serpens</i>	+	<i>Smilax china var. kuru</i>	
11						+	<i>Rapanea nerifolia</i>	
12						+	<i>Rhus succedanea</i>	
13						+	<i>Sphaeropteris lepifera</i>	
14						+	<i>Alocasia odora</i>	
15						+	<i>Persea thunbergii</i>	
16						+	<i>Pteris semipinnata</i>	
17						+	<i>Thelypteris acuminata</i>	
18						+	<i>Maesa montana</i>	
19						+	<i>Gahnia tristis</i>	
20						+	<i>Ficus erecta</i>	
21						+	<i>Daphniphyllum glaucescens teijsmannii</i>	
22						+	<i>Morus australis</i>	
23						+	<i>Mussaenda parviflora</i>	
24						+	<i>Carex breviscapa</i>	
25						+	<i>Castanopsis sieboldii</i>	
26						+	<i>Syzygium buxifolium</i>	
27						+	<i>Glochidion zeylanicum</i>	
28						+	<i>Miscanthus sinensis</i>	
29						+	<i>Tarenna gracilipes</i>	
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Vegetation	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association							

Vegetation Table

No.	I	LZ Name	LZ-Phoenix	24-Jun-11	Surveyor			
	Topography	Slope		Wind	Middle	Elevation	66 m	
				Sun Light	Middle-shadow	Direction	SW60	
				Soil Humidity	Suitable	Slope Degree	25 °	
						Survey Area	10 × 10 m	
	Layer	Height (m)	Cover (%)	Dominant species		Remarks		
	I Tree layer	~ 12	80			D·S means "Density" and "Sociability"		
	II Sub-Tree layer	~ 7	50					
	III Shrub layer	~ 3	30					
	IV Herb layer	~ 0.4	10					
	V Moss layer							
	D·S	I	D·S	II	D·S	III	D·S	IV
1	3-3	<i>Schima wallichii liukuensis</i>	2-2	<i>Elaeocarpus japonicus</i>	1-1	<i>Ardisia quinquegona</i>	1-1	<i>Ardisia quinquegona</i>
2	2-2	<i>Persea thunbergii</i>	2-2	<i>Syzygium buxifolium</i>	1-1	<i>Pleioblastus linearis</i>	+	<i>Gahnia tristis</i>
3	1-2	<i>Symplocos lucida var. nakaharae</i>	1-1	<i>Rapanea neriiifolia</i>	1-1	<i>Elaeocarpus japonicus</i>	+	<i>Psychotria serpens</i>
4	+	<i>Elaeocarpus sylvestris</i>	+	<i>Dendropanax trifidus</i>	+	<i>Euonymus lutchuensis</i>	+	<i>Smilax china var. kuru</i>
5	+	<i>Ilex liukuensis</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Lasianthus cyanocarpus</i>	+	<i>Cinnamomum doederleinii</i>
6	+	<i>Camellia sasanqua</i>	+	<i>Persea thunbergii</i>	+	<i>Syzygium buxifolium</i>	+	<i>Lophatherum gracile</i>
7			+	<i>Rhododendron tashiroi</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Pleioblastus linearis</i>
8			+	<i>Ilex integra</i>	+	<i>Persea thunbergii</i>	+	<i>Lindsaea orbiculata var. commixta</i>
9			+	<i>Cinnamomum pseudo-pedunculatum</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Ardisia crenata</i>
10			+	<i>Myrica rubra</i>	+	<i>Psychotria serpens</i>	+	<i>Syzygium buxifolium</i>
11							+	<i>Camellia sasanqua</i>
12							+	<i>Dicranopteris linearis</i>
13							+	<i>Antidesma japonicum</i>
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Vegetation	<i>Psychotria rubra</i> - <i>Schima wallichii</i> ssp. <i>liukuensis</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Phoenix	24-Jun-11	Surveyor				
Topography		Slope			Wind	Middle	Elevation	75 m	
					Sun Light	High	Direction	N	
					Soil Humidity	Suitable	Slope Degree	25°	
					Survey Area		10 × 10 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	~					D·S means "Density" and "Sociability"			
II Sub-Tree layer	~ 8	70							
III Shrub layer	~ 3	20							
IV Herb layer	~ 1	80							
V Moss layer									
D·S	II	D·S	III	D·S	IV	D·S			
1	4·4 <i>Macaranga tanarius</i>	1·1	<i>Leucaena leucocephala</i>	4·4	<i>Oplismenus compositus</i>				
2	1·1 <i>Morus australis</i>	1·1	<i>Morus australis</i>	3·3	<i>Alocasia odora</i>				
3	+ <i>Leucaena leucocephala</i>	+	<i>Elaeocarpus sylvestris</i>	+	<i>Pueraria montana</i>				
4	+ <i>Pueraria montana</i>	+	<i>Schefflera octophylla</i>	+	<i>Bidens pilosa</i> var. <i>radiata</i> f. <i>decumbens</i>				
5		+	<i>Macaranga tanarius</i>	+	<i>Ficus erecta</i>				
6		+	<i>Pueraria montana</i>	+	<i>Thelypteris parasitica</i>				
7		+	<i>Ipomoea acuminata</i>	+	<i>Pittosporum tobira</i>				
8		+	<i>Ficus erecta</i>	+	<i>Persea thunbergii</i>				
9				+	<i>Ficus ampelas</i>				
10				+	<i>Ipomoea acuminata</i>				
11				+	<i>Carex brunnea</i>				
12				+	<i>Miscanthus sinensis</i>				
13				+	<i>Scirpus ternatanus</i>				
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Vegetation		<i>Macaranga tanarius</i> community							

Vegetation Table

No.	3	LZ Name	LZ-Phoenix	24-Jun-11	Surveyor				
Topography		Flat Area			Wind	Middle	Elevation	80 m	
					Sun Light	High	Direction	-	
					Soil Humidity	Suitable	Slope Degree	-	
					Survey Area		3 x 3 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"			
II Sub-Tree layer	_____	_____	_____	_____	_____				
III Shrub layer	_____	_____	_____	_____	_____				
	_____	_____	_____	_____	_____				
IV Herb layer	~ 3	100	_____	_____	_____				
V Moss layer	_____	_____	_____	_____	_____				
D-S	I	D-S		D-S		D-S			
1	4-3	<i>Miscanthus sinensis</i>							
2	2-2	<i>Leucaena leucocephala</i>							
3	1-1	<i>Ipomoea acuminata</i>							
4	+	<i>Bidens pilosa</i> var. <i>radiata</i> f. <i>decumbens</i>							
5	+	<i>Carex brunnea</i>							
6	+	<i>Arundo donax</i>							
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Vegetation		<i>Leucaena leucocephala</i> / <i>Miscanthus sinensis</i> community							

Vegetation Table

No.	I	LZ name	LZ-Rail	7-Jul-11		Surveyor		
	Topography		Slope	Wind	Middle	Elevation	71 m	
				Sun Light	High	Direction	NW20	
				Soil Humidity	Suitable	Slope Degree	40°	
						Survey Area	10 × 10 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 13	90				D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 7	30						
III Shrub layer	~ 3	20						
IV Herb layer	~ 0.7	10						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	5·5 <i>Quercus miyagii</i>	2·2	<i>Quercus miyagii</i>	2·2	<i>Ardisia quinquegona</i>	1·1	<i>Gibotium barometz</i>	
2	1·1 <i>Schima wallichii liukuensis</i>	1·1	<i>Syzygium buxifolium</i>	+	<i>Syzygium buxifolium</i>	+·2	<i>Dryopteris sordidipes</i>	
3	+ <i>Anodendron affine</i>	+	<i>Schefflera octophylla</i>	+	<i>Ilex liukuensis</i>	+·2	<i>Quercus miyagii</i>	
4		+	<i>Distylium racemosum</i>	+	<i>Neolitsea aciculata</i>	+	<i>Ardisia quinquegona</i>	
5		+	<i>Psychotria serpens</i>	+	<i>Distylium racemosum</i>	+	<i>Anodendron affine</i>	
6		+	<i>Castanopsis sieboldii</i>	+	<i>Psychotria rubra</i>	+	<i>Lasianthus cyanocarpus</i>	
7		+	<i>Rhus succedanea</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	+	<i>Pronophrium triphyllum</i>	
8		+	<i>Randia canthioides</i>	+	<i>Elaeocarpus sylvestris</i>	+	<i>Lophatherum gracile</i>	
9		+	<i>Elaeocarpus japonicus</i>	+	<i>Euonymus lutchuensis</i>	+	<i>Randia canthioides</i>	
10				+	<i>Smilax china var. kuru</i>	+	<i>Dicranopteris linearis</i>	
11				+	<i>Anodendron affine</i>	+	<i>Psychotria serpens</i>	
12				+	<i>Tarenna gracilipes</i>	+	<i>Persea thunbergii</i>	
13				+	<i>Lasianthus fordii</i>	+	<i>Blechnum orientale</i>	
14				+	<i>Psychotria serpens</i>	+	<i>Alpinia intermedia</i>	
15						+	<i>Smilax china var. kuru</i>	
16						+	<i>Ilex liukuensis</i>	
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Vegetation	<i>Quercus miyagii</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Rail	07-Jul-11		Surveyor			
Topography		Slope			Wind	Middle	Elevation	89 m	
					Sun Light	High	Direction	-	
					Soil Humidity	Suitable	Slope Degree	-	
							Survey Area	10 × 10 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	~ 14	70				D-S means "Density" and "Sociability"			
II Sub-Tree layer	~ 8	50							
III Shrub layer	~ 3	10							
IV Herb layer	~ 0.6	20							
V Moss layer									
D·S	I	D·S	II	D·S	III	D·S	IV		
1	4-4 <i>Casuarina equisetifolia</i>	3-3	<i>Elaeocarpus sylvestris</i>	1-1	<i>Daphniphyllum glaucescens teijsmannii</i>	2-2	<i>Dicranopteris linearis</i>		
2		1-1	<i>Casuarina equisetifolia</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	+	<i>Ardisia sieboldii</i>		
3		1-1	<i>Schima wallichii liukuensis</i>	+	<i>Casuarina equisetifolia</i>	+	<i>Myrica rubra</i>		
4		+	<i>Elaeocarpus japonicus</i>	+	<i>Psychotria serpens</i>	+	<i>Ardisia quinquegona</i>		
5		+	<i>Coptosapelta diffusa</i>	+	<i>Pleioblastus linearis</i>	+	<i>Persea thunbergii</i>		
6		+	<i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Rhaphiolepis indica</i>	+	<i>Coptosapelta diffusa</i>		
7		+	<i>Psychotria serpens</i>	+	<i>Morinda umbellata</i>	+	<i>Psychotria serpens</i>		
8		+	<i>Morus australis</i>	+	<i>Schima wallichii liukuensis</i>	+	<i>Rhus succedanea</i>		
9				+	<i>Persea thunbergii</i>				
10				+	<i>Cinnamomum doederleinii</i>				
11				+	<i>Elaeocarpus sylvestris</i>				
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Vegetation		Casuarina plantation							

Vegetation Table

No.	3	LZ Name	LZ-Rail	7-Jul-11	Surveyor			
Topography		Flat area			Wind	Middle	Elevation	75 m
					Sun Light	High	Direction	-
					Soil Humidity	Suitable	Slope Degree	-
					Survey Area		3 x 3 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"		
II Sub-Tree layer	_____	_____	_____	_____	_____			
III Shrub layer	_____	_____	_____	_____	_____			
IV Herb layer	~ 2.5	90	_____	_____	_____			
V Moss layer	_____	_____	_____	_____	_____			
D-S	IV	D-S		D-S		D-S		
1	4-4	<i>Miscanthus sinensis</i>						
2	3-3	<i>Dicranopteris linearis</i>						
3	+	<i>Schima wallichii liukuensis</i>						
4	+	<i>Melastoma candidum</i>						
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Vegetation		<i>Leucaena leucocephala</i> / <i>Miscanthus sinensis</i> community						

Vegetation Table

No.	I	LZ Name	LZ-Raven	08-Jun-11		Surveyor		
	Topography	Bottom of Slope		Wind	Middle	Elevation	66 m	
				Sun Light	High	Direction	NW40	
				Soil Humidity	Suitable	Slope Degree	45 °	
						Survey Area	12 × 12 m	
	Layer	Height (m)	Cover (%)	Dominant species			Remarks	
	I Tree layer	~ 12	80				D-S means "Density" and "Sociability"	
	II Sub-Tree layer	~ 7	30					
	III Shrub layer	~ 3	30					
	IV Herb layer	~ 1	50					
	V Moss layer							
	D·S	I	D·S	II	D·S	III	D·S	IV
1	4-4	<i>Schima wallichii liukiensis</i>	2-2	<i>Syzygium buxifolium</i>	2-2	<i>Pleioblastus linearis</i>	2-3	<i>Selaginella doederleinii</i>
2	2-2	<i>Cinnamomum doederleinii</i>	1-1	<i>Elaeocarpus japonicus</i>	1-1	<i>Camellia sasanqua</i>	1-1	<i>Blechnum orientale</i>
3	1-1	<i>Persea thunbergii</i>	+	<i>Rapanea neriifolia</i>	+	<i>Euonymus lutchuensis</i>	1-1	<i>Oplismenus compositus var. patens</i>
4	+	<i>Diospyros morrisiana</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Ardisia quinquegona</i>	1-1	<i>Dicranopteris linearis</i>
5	+	<i>Morinda umbellata</i>			+	<i>Elaeocarpus japonicus</i>	+	<i>Lasianthus wallichii</i>
6	+	<i>Symplocos lucida var. nakaharae</i>			+	<i>Ilex ficoidea</i>	+	<i>Lasianthus fordii</i>
7							+	<i>Psychotria serpens</i>
8							+	<i>Lophatherum gracile</i>
9							+	<i>Tylophora japonica</i>
10							+	<i>Glochidion zeylanicum</i>
11							+	<i>Thelypteris glanduligera var. elatior</i>
12							+	<i>Dryopteris sordidipes</i>
13							+	<i>Ficus benguetensis</i>
14							+	<i>Daphniphyllum glaucescens teijsmannii</i>
15							+	<i>Rapanea neriifolia</i>
16							+	<i>Carex breviscapa</i>
17							+	<i>Persea thunbergii</i>
18							+	<i>Antidesma japonicum</i>
19							+	<i>Mussaenda parviflora</i>
20							+	<i>Lycopodium japonicum var. microstachyum</i>
21							+	<i>Gardenia jasminoides f. grandiflora</i>
22							+	<i>Cinnamomum doederleinii</i>
23							+	<i>Rhus succedanea</i>
24							+	<i>Alpinia intermedia</i>
25							+	<i>Gahnia tristis</i>
26							+	<i>Melastoma candidum</i>
27							+	<i>Smilax china var. kuru</i>
28							+	<i>Psychotria rubra</i>
29							+	<i>Pittosporum tobira</i>
30							+	<i>Scleria terrestris</i>
31							+	<i>Sphaeropteris lophifera</i>
32							+	<i>Trechelospermum asiaticum var. liukiense</i>
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Vegetation	<i>Psychotria rubra</i> - <i>Schima wallichii</i> ssp. <i>liukiensis</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Raven	08-Jun-11	Surveyor			
Topography		Slope			Wind	Middle	Elevation	71 m
					Sun Light	High	Direction	SW60
					Soil Humidity	Suitable	Slope Degree	25 °
					Survey Area		10 × 10 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 11	80				D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 7	20						
III Shrub layer	~ 2.5	60						
IV Herb layer	~ 0.4	5						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	3-3 <i>Pinus luchuensis</i>	2-2	<i>Syzygium buxifolium</i>	4-4	<i>Pleiblastus linearis</i>	+2	<i>Persea thunbergii</i>	
2	2-2 <i>Schima wallichii liukuensis</i>	1-1	<i>Symplocos lucida var. nakaharuae</i>	+	<i>Smilax nervo-marginata</i>	+	<i>Gahnia tristis</i>	
3	1-1 <i>Persea thunbergii</i>	+	<i>Dendropanax trifidus</i>	+	<i>Psychotria serpens</i>	+	<i>Miscanthus sinensis</i>	
4	1-1 <i>Cinnamomum doederleinii</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Gardenia jasminoides f. grandiflora</i>	+	<i>Melastoma candidum</i>	
5		+	<i>Euscaphis japonica</i>	+	<i>Smilax china var. kuru</i>	+	<i>Syzygium buxifolium</i>	
6		+	<i>Schima wallichii liukuensis</i>			+	<i>Daphniphyllum glaucescens teijsmannii</i>	
7		+	<i>Elaeocarpus japonicus</i>			+	<i>Cinnamomum doederleinii</i>	
8		+	<i>Pinus luchuensis</i>			+	<i>Psychotria serpens</i>	
9						+	<i>Callicarpa japonica var. luxurians</i>	
10						+	<i>Pittosporum tobira</i>	
11						+	<i>Euscaphis japonica</i>	
12						+	<i>Pleiblastus linearis</i>	
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Vegetation		<i>Pinus luchuensis</i> community						

Vegetation Table

No.	I	LZ Name	LZ-Rook	06-Jun-11		Surveyor			
Topography		Top of Hill		Wind	Middle	Elevation	102 m		
				Sun Light	High	Direction	W		
				Soil Humidity	Suitable	Slope Degree	10°		
						Survey Area	10 × 10 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	~ 11	50				D-S means "Density" and "Sociability"			
II Sub-Tree layer	~ 7	70							
III Shrub layer	~ 2.5	70							
IV Herb layer	~ 0.7	40							
V Moss layer									
D·S	I	D·S	II	D·S	III	D·S	IV		
1	3-3 <i>Pinus luchuensis</i>	4-4	<i>Persea thunbergii</i>	4-4	<i>Pleioblastus linearis</i>	3-3	<i>Dicranopteris linearis</i>		
2	+ <i>Coptosapelta diffusa</i>	1-1	<i>Castanopsis sieboldii</i>	+	<i>Vaccinium wrightii</i>	+	<i>Syzygium buxifolium</i>		
3		1-1	<i>Symplocos lucida</i> var. <i>nakaharae</i>	+	<i>Coptosapelta diffusa</i>	+	<i>Pleioblastus linearis</i>		
4		+	<i>Pinus luchuensis</i>	+	<i>Castanopsis sieboldii</i>	+	<i>Persea thunbergii</i>		
5		+	<i>Syzygium buxifolium</i>	+	<i>Callicarpa japonica</i> var. <i>luxurians</i>	+	<i>Vaccinium wrightii</i>		
6		+	<i>Daphniphyllum glaucescens teijmannii</i>	+	<i>Psychotria serpens</i>	+	<i>Coptosapelta diffusa</i>		
7		+	<i>Elaeocarpus japonicus</i>	+	<i>Eurya japonica</i>	+	<i>Psychotria serpens</i>		
8		+	<i>Psychotria serpens</i>			+	<i>Rapanea neriifolia</i>		
9		+	<i>Rhaphiolepis indica</i>			+	<i>Daphniphyllum glaucescens teijmannii</i>		
10		+	<i>Cinnamomum doederleinii</i>			+	<i>Cinnamomum doederleinii</i>		
11		+	<i>Diospyros morrisiana</i>						
12		+	<i>Ilex liukuensis</i>						
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Vegetation		<i>Pinus luchuensis</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Rook	06-Jun-11		Surveyor		
Topography		Slope		Wind	Middle	Elevation	89 m	
				Sun Light	High	Direction	NW80	
				Soil Humidity	Suitable	Slope Degree	30 °	
						Survey Area	15 × 15 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 13	70				D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 9	60						
III Shrub layer	~ 4	30						
IV Herb layer	~ 1.3	40						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	4·4 <i>Castanopsis sieboldii</i>	2·2	<i>Schima wallichii liukuensis</i>	1·2	<i>Pleioblastus linearis</i>	2·2	<i>Gibotium barometz</i>	
2	+ <i>Persea thunbergii</i>	2·2	<i>Elaeocarpus japonicus</i>	1·1	<i>Symplocos lucida</i> var. <i>nakaharae</i>	1·2	<i>Carex breviscapa</i>	
3		1·1	<i>Symplocos lucida</i> var. <i>nakaharae</i>	1·1	<i>Ardisia quinquegona</i>	1·1	<i>Galnia tristis</i>	
4		1·1	<i>Syzygium buxifolium</i>		+ <i>Syzygium buxifolium</i>		+ <i>Dicranopteris linearis</i>	
5			+ <i>Diospyros morrisiana</i>		+ <i>Ilex goshiensis</i>		+ <i>Daphniphyllum glaucescens teijsmannii</i>	
6			+ <i>Myrica rubra</i>		+ <i>Persea thunbergii</i>		+ <i>Rapanea nerifolia</i>	
7			+ <i>Schoepfia jasminodora</i>		+ <i>Wendlandia formosana</i>		+ <i>Persea thunbergii</i>	
8			+ <i>Rhaphiolepis indica</i>		+ <i>Camellia sasanqua</i>		+ <i>Castanopsis sieboldii</i>	
9					+ <i>Photinia wrightiana</i>		+ <i>Cinnamomum doederleinii</i>	
10					+ <i>Euonymus lutchuensis</i>		+ <i>Syzygium buxifolium</i>	
11					+ <i>Smilax nervo-marginata</i>		+ <i>Lindsaea orbiculata</i> var. <i>commixta</i>	
12					+ <i>Rapanea nerifolia</i>		+ <i>Antidesma japonicum</i>	
13					+ <i>Dendropanax trifidus</i>		+ <i>Lophatherum gracile</i>	
14							+ <i>Ardisia crenata</i>	
15							+ <i>Gardenia jasminoides</i> f. <i>grandiflora</i>	
16							+ <i>Anodendron affine</i>	
17							+ <i>Miscanthus sinensis</i>	
18							+ <i>Psychotria rubra</i>	
19							+ <i>Symplocos lucida</i> var. <i>nakaharae</i>	
20							+ <i>Smilax china</i> var. <i>kuru</i>	
21							+ <i>Psychotria serpens</i>	
22							+ <i>Rhaphiolepis indica</i>	
23							+ <i>Cinnamomum pseudo-pedunculatum</i>	
24							+ <i>Camellia sasanqua</i>	
25							+ <i>Rhus succedanea</i>	
26							+ <i>Randia canthioides</i>	
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Vegetation		<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association						

Vegetation Table

No.	I	LZ Name	LZ-Swallow	01-Jul-11	Surveyor			
	Topography	Flat Area		Wind	Middle	Elevation	72 m	
				Sun Light	High	Direction	-	
				Soil Humidity	Suitable	Slope Degree	-	
						Survey Area	10 × 10 m	
	Layer	Height (m)	Cover (%)	Dominant species		Remarks		
	I Tree layer	~ 14	70			D-S means "Density" and "Sociability"		
	II Sub-Tree layer	~ 9	30					
	III Shrub layer	~ 4	20					
	IV Herb layer	~ 0.9	10					
	V Moss layer							
	D·S	I	D·S	II	D·S	III	D·S	IV
1	4·4	<i>Casuarina cunninghamiana</i>	2·2	<i>Casuarina cunninghamiana</i>	1·1	<i>Neolitsea sericea</i>	1·1	<i>Persea thunbergii</i>
2			1·1	<i>Elaeocarpus japonicus</i>	1·1	<i>Persea thunbergii</i>	+	<i>Miscanthus sinensis</i>
3			+	<i>Schima wallichii liukuensis</i>	+	<i>Elaeocarpus sylvestris</i>	+	<i>Dicranopteris linearis</i>
4			+	<i>Elaeocarpus sylvestris</i>	+	<i>Casuarina cunninghamiana</i>	+	<i>Thelypteris parasitica</i>
5			+	<i>Neolitsea sericea</i>	+	<i>Leucaena leucocephala</i>	+	<i>Thelypteris acuminata</i>
6					+	<i>Sphaeropteris lepifera</i>	+	<i>Glochidion obovatum</i>
7					+	<i>Psychotria serpens</i>	+	<i>Lygodium japonicum var. microstachyum</i>
8					+	<i>Lygodium japonicum var. microstachyum</i>	+	<i>Elaeagnus thunbergii</i>
9							+	<i>Psychotria serpens</i>
10							+	<i>Mussaenda parviflora</i>
11							+	<i>Daphniphyllum glaucescens teijsmannii</i>
12							+	<i>Schima wallichii liukuensis</i>
13							+	<i>Heterosmilax japonica</i>
14							+	<i>Casuarina cunninghamiana</i>
15							+	<i>Alocasia odora</i>
16							+	<i>Cycas revoluta</i>
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Vegetation		Casuarina plantation						

Vegetation Table

No.	2	LZ Name	LZ-Swallow	1-Jul-11	Surveyor			
	Topography	Slope		Wind	Middle	Elevation	67 m	
				Sun Light	Middle-shadow	Direction	NW70	
				Soil Humidity	Suitable	Slope Degree	45°	
						Survey Area	10 × 10 m	
	Layer	Height (m)	Cover (%)	Dominant species		Remarks		
	I Tree layer	~ 10	80			D·S means "Density" and "Sociability"		
	II Sub-Tree layer	~ 7	40					
	III Shrub layer	~ 2	10					
	IV Herb layer	~ 0.6	30					
	V Moss layer							
	D·S	I	D·S	II	D·S	III	D·S	IV
1	4·4	<i>Castanopsis sieboldii</i>	2·2	<i>Elaeocarpus japonicus</i>	1·1	<i>Syzygium buxifolium</i>	2·2	<i>Dicranopteris linearis</i>
2	2·2	<i>Schima wallichii liukuensis</i>	1·1	<i>Rapanea neriifolia</i>	+	<i>Camellia sasanqua</i>	1·1	<i>Dryopteris sordidipes</i>
3	+	<i>Diospyros morrisiana</i>	1·1	<i>Syzygium buxifolium</i>	+	<i>Ardisia quinquegona</i>	+	<i>Cibotium barometz</i>
4	+	<i>Cinnamomum doederleinii</i>	1·1	<i>Distylium racemosum</i>	+	<i>Photinia wrightiana</i>	+	<i>Psychotria serpens</i>
5	+	<i>Rapanea neriifolia</i>	+	<i>Ternstroemia gymnanthera</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Lindsaea orbiculata var. commixta</i>
6	+	<i>Pinus luchuensis</i>	+	<i>Schima wallichii liukuensis</i>			+	<i>Gahnia tristis</i>
7	+	<i>Osmanthus marginatus</i>	+	<i>Symplocos lucida var. nakaharae</i>			+	<i>Rapanea neriifolia</i>
8	+	<i>Elaeocarpus japonicus</i>	+	<i>Rhododendron tashiroi</i>			+	<i>Daphniphyllum glaucescens teijsmannii</i>
9							+	<i>Castanopsis sieboldii</i>
10							+	<i>Miscanthus sinensis</i>
11							+	<i>Persea thunbergii</i>
12							+	<i>Smilax china var. kuru</i>
13							+	<i>Syzygium buxifolium</i>
14							+	<i>Camellia sasanqua</i>
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Vegetation		<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association						

Vegetation Table

No.	3	LZ Name	LZ-Swallow	1-Jul-11		Surveyor		
	Topography	Slope		Wind	Middle	Elevation	69 m	
				Sun Light	High	Direction	SW50	
				Soil Humidity	Suitable	Slope Degree	20 °	
						Survey Area	10 × 10 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~					D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 7	50						
III Shrub layer	~ 2.5	60						
IV Herb layer	~ 0.6	70						
V Moss layer								
D·S	II	D·S	III	D·S	IV	D·S		
1	3·3 <i>Pinus luchuensis</i>	3·3	<i>Pittosporum tobira</i>	3·3	<i>Dicranopteris linearis</i>			
2	1·1 <i>Persea thunbergii</i>	2·2	<i>Pleiblastus linearis</i>	3·3	<i>Erianthus formosanus</i> var. <i>pollinioides</i>			
3	1·1 <i>Schima wallichii liukuensis</i>	1·1	<i>Daphniphyllum glaucescens teijsmannii</i>	1·1	<i>Thelypteris acuminata</i>			
4	+ <i>Cinnamomum doederleinii</i>	+	<i>Schima wallichii liukuensis</i>	+	<i>Psychotria serpens</i>			
5	+ <i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Miscanthus sinensis</i>	+	<i>Smilax china</i> var. <i>kuru</i>			
6	+ <i>Symplocos lucida</i> var. <i>nakaharae</i>	+	<i>Itea oldhamii</i>	+	<i>Miscanthus sinensis</i>			
7	+ <i>Ilex maximowicziana</i> var. <i>mutchagara</i>	+	<i>Persea thunbergii</i>	+	<i>Imperata cylindrica</i> var. <i>major</i>			
8	+ <i>Smilax china</i> var. <i>kuru</i>	+	<i>Psychotria serpens</i>	+	<i>Lygodium japonicum</i> var. <i>microstachyum</i>			
9	+ <i>Psychotria serpens</i>	+	<i>Lygodium japonicum</i> var. <i>microstachyum</i>	+	<i>Centella asiatica</i>			
10	+ <i>Itea oldhamii</i>	+	<i>Ficus erecta</i>	+	<i>Rubus sieboldii</i>			
11		+	<i>Rhodomyrtus tomentosa</i>	+	<i>Ficus erecta</i>			
12		+	<i>Syzygium buxifolium</i>	+	<i>Dianella ensifolia</i> f. <i>reemulifera</i>			
13				+	<i>Geodorum densiflorum</i>			
14				+	<i>Carex brunnea</i>			
15				+	<i>Aristolochia liukuensis</i>			
16				+	<i>Glochidion obovatum</i>			
17				+	<i>Rapanea neriifolia</i>			
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Vegetation	<i>Pinus luchuensis</i> community							

Vegetation Table

No.	I	LZ Name	LZ-Swan	16-Jun-11	Surveyor		
	Topography	Flat Area		Wind	Middle	Elevation	11 m
				Sun Light	High	Direction	-
				Soil Humidity	Suitable	Slope Degree	-
						Survey Area	8 × 8 m
	Layer	Height (m)	Cover (%)	Dominant species		Remarks	
	I Tree layer	_____	_____	_____	_____	D-S means "Density" and "Sociability"	
	II Sub-Tree layer	~ 8	20	_____	_____		
	III Shrub layer	~ 5	60	_____	_____		
	IV Herb layer	~ 1.2	60	_____	_____		
	V Moss layer	_____	_____	_____	_____		
	D·S	II	D·S	III	D·S	IV	D·S
1	1·1	<i>Cinnamomum pseudo-pedunculatum</i>	3·3	<i>Morus australis</i>	4·4	<i>Thelypteris acuminata</i>	
2	1·1	<i>Morus australis</i>	2·2	<i>Leucaena leucocephala</i>	1·1	<i>Miscanthus sinensis Anderss.</i>	
3	1·1	<i>Symplocos lucida var. nakaharae</i>	1·1	<i>Litsea japonica</i>	+	<i>Persea thunbergii</i>	
4	+	<i>Leucaena leucocephala</i>	+	<i>Macaranga tanarius</i>	+	<i>Leucaena leucocephala</i>	
5			+	<i>Pueraria montana</i>	+	<i>Ardisia sieboldii</i>	
6			+	<i>Ficus virgata</i>	+	<i>Elaeocarpus sylvestris</i>	
7			+	<i>Ficus erecta</i>	+	<i>Litsea japonica</i>	
8			+	<i>Cinnamomum pseudo-pedunculatum</i>	+	<i>Pittosporum tobira</i>	
9			+	<i>Euonymus japonicus</i>	+	<i>Clematis grata var. ryukyuensis</i>	
10			+	<i>Heterosmilax japonica</i>	+	<i>Euonymus japonicus</i>	
11			+	<i>Pittosporum tobira</i>	+	<i>Breynia vitis-idaea</i>	
12			+	<i>Smilax sebeana</i>	+	<i>Carmona retusa</i>	
13			+	<i>Paederia scandens</i>	+	<i>Callicarpa japonica var. luxurians</i>	
14			+	<i>Stephania japonica</i>	+	<i>Carex brunnea</i>	
15					+	<i>Ficus erecta</i>	
16					+	<i>Alocasia odora</i>	
17					+	<i>Cinnamomum pseudo-pedunculatum</i>	
18					+	<i>Paederia scandens</i>	
19					+	<i>Oplismenus compositus</i>	
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Vegetation	<i>Trema orientalis</i> / <i>Oreocnide pedunculata</i> alliance						

Vegetation Table

No.	2	LZ Name	LZ-Swan	16-Jun-11	Surveyor	
Topography		Flat Area		Wind	Strong	Elevation 4 m
		sandy coast		Sun Light	High	Direction SW70
				Soil Humidity	Dry	Slope Degree 15 °
						Survey Area 5 x 5 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks
I Tree layer	_____	_____	_____			D-S means "Density" and "Sociability"
II Sub-Tree layer	_____	_____	_____			
III Shrub layer	~ 3	90	_____			
	_____	_____	_____			
IV Herb layer	_____	_____	_____			
V Moss layer	_____	_____	_____			
D-S	III	D-S		D-S		D-S
1	5-S	<i>Pandanus odoratissimus</i>				
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Vegetation	<i>Pandanus odoratissimus</i> community					

Vegetation Table

No.	3	LZ Name	LZ-Swan	16-Jun-11	Surveyor				
Topography		Top of Slope			Wind	Middle	Elevation	24 m	
					Sun Light	High	Direction	NW30	
					Soil Humidity	Suitable	Slope Degree	22 °	
					Survey Area		8 × 8 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	_____	_____	_____			D-S means "Density" and "Sociability"			
II Sub-Tree layer	~ 8	60	_____						
III Shrub layer	~ 4	50	_____						
IV Herb layer	~ 0.8	40	_____						
V Moss layer	_____	_____	_____						
D·S	II	D·S	III	D·S	IV	D·S			
1	2·2 <i>Pinus luchuensis</i>	3·3	<i>Persea thunbergii</i>	3·3	<i>Carex brunnea</i>				
2	2·2 <i>Symplocos lucida</i> var. <i>nakaharae</i>	1·1	<i>Litsea japonica</i>	1·1	<i>Litsea japonica</i>				
3	1·1 <i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Elaeocarpus sylvestris</i>	+	<i>Cycas revoluta</i>				
4	+ <i>Persea thunbergii</i>	+	<i>Morus australis</i>	+	<i>Farfugium japonicum</i>				
5		+	<i>Ficus virgata</i>	+	<i>Ficus erecta</i>				
6		+	<i>Cinnamomum pseudo-pedunculatum</i>	+	<i>Psychotria serpens</i>				
7		+	<i>Rhaphiolepis indica</i>	+	<i>Smilax sebeana</i>				
8				+	<i>Alpinia zerumbet</i>				
9				+	<i>Callicarpa japonica</i> var. <i>luxurians</i>				
10				+	<i>Persea thunbergii</i>				
11				+	<i>Cinnamomum pseudo-pedunculatum</i>				
12				+	<i>Rhaphiolepis indica</i>				
13				+	<i>Daphniphyllum glaucescens teijsmannii</i>				
14				+	<i>Elaeocarpus sylvestris</i>				
15				+	<i>Lophatherum gracile</i>				
16				+	<i>Symplocos lucida</i> var. <i>nakaharae</i>				
17				+	<i>Breynia vitis-idaea</i>				
18				+	<i>Dianella ensifolia</i> f. <i>reemulifera</i>				
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Vegetation		<i>Pinus luchuensis</i> community							

Vegetation Table

No.	I	LZ Name	LZ-Tern	02-Jun-11		Surveyor		
	Topography	Slope		Wind	Middle	Elevation	m	
				Sun Light	Middle-shadow	Direction	S	
				Soil Humidity	Suitable	Slope Degree	20°	
						Survey Area	15 × 15 m	
	Layer	Height (m)	Cover (%)	Dominant species			Remarks	
	I Tree layer	~ 12	70				D-S means "Density" and "Sociability"	
	II Sub-Tree layer	~ 8	50					
	III Shrub layer	~ 3	50					
	IV Herb layer	~ 0.6	10					
	V Moss layer							
	D·S	I	D·S	II	D·S	III	D·S	IV
1	3·3	<i>Schima wallichii liukuensis</i>	3·3	<i>Daphniphyllum glaucescens teijsmannii</i>	3·3	<i>Pleioblastus linearis</i>	1·1	<i>Persea thunbergii</i>
2	1·1	<i>Persea thunbergii</i>	1·1	<i>Schima wallichii liukuensis</i>	1·1	<i>Syzygium buxifolium</i>	+	<i>Antidesma japonicum</i>
3	1·1	<i>Elaeocarpus japonicus</i>	1·1	<i>Syzygium buxifolium</i>	+	<i>Viburnum japonicum</i>	+	<i>Ardisia quinquegona</i>
4	+	<i>Pinus luchuensis</i>	+	<i>Elaeocarpus japonicus</i>	+	<i>Persea thunbergii</i>	+	<i>Tylophora japonica</i>
5	+	<i>Cinnamomum doederleinii</i>	+	<i>Ilex liukuensis</i>	+	<i>Rhaphiolepis indica</i>	+	<i>Cinnamomum doederleinii</i>
6	+	<i>Psychotria serpens</i>	+	<i>Persea thunbergii</i>	+	<i>Ilex maximowicziana var. mutchagara</i>	+	<i>Elaeocarpus sylvestris</i>
7					+	<i>Lasianthus cyanocarpus</i>	+	<i>Blechnum orientale</i>
8					+	<i>Elaeocarpus japonicus</i>	+	<i>Callicarpa japonica var. luxurians</i>
9					+	<i>Smilax china var. kuru</i>	+	<i>Alpinia intermedia</i>
10					+	<i>Gardenia jasminoides f. grandiflora</i>	+	<i>Lindsaea chienii</i>
11					+	<i>Ardisia quinquegona</i>	+	<i>Psychotria serpens</i>
12					+	<i>Psychotria rubra</i>	+	<i>Melastoma candidum</i>
13					+	<i>Psychotria serpens</i>	+	<i>Rhus succedanea</i>
14					+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Scleria terrestris</i>
15					+	<i>Smilax nervo-marginata</i>	+	<i>Ficus erecta</i>
16							+	<i>Mallotus japonicus</i>
17							+	<i>Rhaphiolepis indica</i>
18							+	<i>Coptosapelta diffusa</i>
19							+	<i>Syzygium buxifolium</i>
20							+	<i>Smilax china var. kuru</i>
21							+	<i>Elaeocarpus japonicus</i>
22							+	<i>Psychotria rubra</i>
23							+	<i>Lindsaea orbiculata var. commixta</i>
24							+	<i>Elaeagnus thunbergii</i>
25							+	<i>Carex breviscapa</i>
26							+	<i>Rapanea neriifolia</i>
27							+	<i>Gahnia tristis</i>
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Vegetation	<i>Psychotria rubra</i> - <i>Schima wallichii</i> ssp. <i>liukuensis</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Tern	02-Jun-11		Surveyor		
Topography		Slope			Wind	Middle	Elevation	m
					Sun Light	Middle-shadow	Direction	SE80
					Soil Humidity	Suitable	Slope Degree	30°
					Survey Area		15 × 15 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 13	70				D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 8	40						
III Shrub layer	~ 2.3	30						
IV Herb layer	~ 1.1	70						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	4·4 <i>Castanopsis sieboldii</i>	2·2	<i>Elaeocarpus japonicus</i>	2·2	<i>Ardisia quinquegona</i>	4·4	<i>Dicranopteris linearis</i>	
2	+ <i>Schima wallichii liukuensis</i>	1·1	<i>Symplocos lucida</i> var. <i>nakaharae</i>	1·1	<i>Castanopsis sieboldii</i>	3·3	<i>Cibotium barometz</i>	
3	+ <i>Persea thunbergii</i>	1·1	<i>Castanopsis sieboldii</i>	+·2	<i>Elaeocarpus japonicus</i>	1·1	<i>Psychotria serpens</i>	
4		+·2	<i>Syzygium buxifolium</i>	+	<i>Ilex goshiensis</i>	+·2	<i>Coptosapelta diffusa</i>	
5		+	<i>Dendropanax trifidus</i>	+	<i>Viburnum japonicum</i>	+	<i>Ardisia quinquegona</i>	
6		+	<i>Ilex goshiensis</i>	+	<i>Randia canthioides</i>	+	<i>Smilax china</i> var. <i>kuru</i>	
7		+	<i>Schima wallichii liukuensis</i>	+	<i>Dendropanax trifidus</i>	+	<i>Gahnia tristis</i>	
8		+	<i>Gardenia jasminoides</i> f. <i>grandiflora</i>	+	<i>Psychotria rubra</i>	+	<i>Symplocos glauca</i>	
9		+	<i>Psychotria serpens</i>	+	<i>Tarenna gracilipes</i>	+	<i>Rhaphiolepis indica</i>	
10				+	<i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Ilex maximowicziana</i> var. <i>mutchagara</i>	
11				+	<i>Syzygium buxifolium</i>	+	<i>Antidesma japonicum</i>	
12				+	<i>Pleioblastus linearis</i>	+	<i>Castanopsis sieboldii</i>	
13				+	<i>Rapanea neriifolia</i>	+	<i>Lophatherum gracile</i>	
14				+	<i>Coptosapelta diffusa</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>	
15				+	<i>Smilax nervo-marginata</i>	+	<i>Glochidion zeylanicum</i>	
16				+	<i>Persea thunbergii</i>	+	<i>Morinda umbellata</i>	
17						+	<i>Pleioblastus linearis</i>	
18						+	<i>Psychotria rubra</i>	
19						+	<i>Syzygium buxifolium</i>	
20						+	<i>Schima wallichii liukuensis</i>	
21						+	<i>Miscanthus sinensis</i>	
22						+	<i>Eurya japonica</i>	
23						+	<i>Cinnamomum doederleinii</i>	
24						+	<i>Rapanea neriifolia</i>	
25						+	<i>Ardisia crenata</i>	
26						+	<i>Diospyros morrisiana</i>	
27						+	<i>Pteris semipinnata</i>	
28						+	<i>Rhodomyrtus tomentosa</i>	
29						+	<i>Vaccinium wrightii</i>	
30						+	<i>Symplocos lucida</i> var. <i>nakaharae</i>	
31						+	<i>Adiantum flabellulatum</i>	
32						+	<i>Rhus succedanea</i>	
33						+	<i>Selaginella doederleinii</i>	
34						+	<i>Lindsaea orbiculata</i> var. <i>commixta</i>	
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Vegetation	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association							

Vegetation Table

No.	I	LZ Name	LZ-Turkey		08-Jun-11		Surveyor		
Topography		Flat Area			Wind	Middle	Elevation	m	
					Sun Light	High	Direction	-	
					Soil Humidity	Suitable	Slope Degree	-	
							Survey Area	10 × 10 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks			
I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"			
II Sub-Tree layer	~ 9	60	_____	_____	_____				
III Shrub layer	~ 3	30	_____	_____	_____				
IV Herb layer	~ 1.5	100	_____	_____	_____				
V Moss layer	_____	_____	_____	_____	_____				
D·S	II	D·S	III	D·S	IV	D·S			
1	3-3 <i>Pinus luchuensis</i>	2-2	<i>Pinus luchuensis</i>	5-5	<i>Vaccinium wrightii</i>				
2	1-1 <i>Schima wallichii liukuensis</i>	1-1	<i>Schima wallichii liukuensis</i>	+	<i>Miscanthus sinensis</i>				
3	1-1 <i>Persea thunbergii</i>	+	<i>Vaccinium wrightii</i>	+	<i>Podocarpus macrophyllus</i>				
4		+	<i>Podocarpus macrophyllus</i>	+	<i>Pteridium aquilinum var. latiusculum</i>				
5				+	<i>Rhodomyrtus tomentosa</i>				
6				+	<i>Psychotria serpens</i>				
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Vegetation		<i>Pinus luchuensis</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Turkey		07-Jun-11		Surveyor				
Topography		Flat Area				Wind	Middle	Elevation	m		
						Sun Light	High	Direction	-		
						Soil Humidity	Suitable	Slope Degree	-		
								Survey Area	12 × 12 m		
Layer	Height (m)	Cover (%)	Dominant species			Remarks					
I Tree layer	~ 15	50				D·S means "Density" and "Sociability"					
II Sub-Tree layer	~ 8	60									
III Shrub layer	~ 3	20									
IV Herb layer	~ 0.6	10									
V Moss layer											
D·S	I	D·S	II	D·S	III	D·S	IV				
1	3-3		4-4		2-2		1-1				
2			+		+		+				
3			+		+		+				
4					+		+				
5					+		+				
6					+		+				
7							+				
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Vegetation		Casuarina plantation									

Vegetation Table

No.	3	LZ Name	LZ-Turkey		07-Jun-11		Surveyor	
Topography		Slope			Wind	Middle	Elevation	m
					Sun Light	High	Direction	SW30
					Soil Humidity	Suitable	Slope Degree	40°
							Survey Area	10 × 10 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 10	80				D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 6	50						
III Shrub layer	~ 2.5	10						
IV Herb layer	~ 0.5	10						
V Moss layer								
D-S	I	D-S	II	D-S	III	D-S	IV	
1	3-3 <i>Schima wallichii liukiensis</i>	3-3	<i>Elaeocarpus japonicus</i>	1-1	<i>Syzygium buxifolium</i>	1-1	<i>Psychotria rubra</i>	
2	2-2 <i>Persea thunbergii</i>	1-1	<i>Schima wallichii liukiensis</i>	+	<i>Elaeocarpus japonicus</i>	+	<i>Gahnia tristis</i>	
3	2-2 <i>Cinnamomum doederleinii</i>	1-1	<i>Syzygium buxifolium</i>	+	<i>Pittosporum tobira</i>	+	<i>Psychotria serpens</i>	
4	1-1 <i>Elaeocarpus japonicus</i>	+	<i>Diplospora dubia</i>	+	<i>Ardisia crenata</i>	+	<i>Carex breviscapa</i>	
5	1-1 <i>Syzygium buxifolium</i>	+	<i>Ilex liukiensis</i>	+	<i>Dendropanax trifidus</i>	+	<i>Adiantum flabellulatum</i>	
6	+			+	<i>Ardisia quinqueгона</i>	+	<i>Persea thunbergii</i>	
7	+			+	<i>Coptosapelta diffusa</i>	+	<i>Pittosporum tobira</i>	
8	+			+	<i>Ilex liukiensis</i>	+	<i>Symplocos lucida var. nakaharae</i>	
9	+					+	<i>Blechnum orientale</i>	
10	+					+	<i>Smilax china var. kuru</i>	
11						+	<i>Lindsaea orbiculata var. commixta</i>	
12						+	<i>Smilax nervo-marginata</i>	
13						+	<i>Rapanea nerifolia</i>	
14						+	<i>Daphniphyllum glaucescens teijsmannii</i>	
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Vegetation	<i>Psychotria rubra</i> - <i>Schima wallichii</i> ssp. <i>liukiensis</i> community							

Vegetation Table

No.	I	LZ Name	LZ-Wren	06-Jul-11		Surveyor		
	Topography	Slope		Wind	Middle	Elevation	141 m	
				Sun Light	Middle-shadow	Direction	NW60	
				Soil Humidity	Suitable	Slope Degree	30 °	
						Survey Area	15 × 15 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 13	80				D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 8	60						
III Shrub layer	~ 3	30						
IV Herb layer	~ 1	30						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	5-5 <i>Castanopsis sieboldii</i>	3-3	<i>Elaeocarpus japonicus</i>	2-2	<i>Ardisia quinquegona</i>	3-3	<i>Gibotium barometz</i>	
2	+ <i>Rhus succedanea</i>	1-1	<i>Syzygium buxifolium</i>	1-1	<i>Castanopsis sieboldii</i>	+	<i>Syzygium buxifolium</i>	
3	+ <i>Elaeocarpus sylvestris</i>	1-1	<i>Symplocos lucida var. nakaharae</i>	+	<i>Antidesma japonicum</i>	+	<i>Carex breviscapa</i>	
4	+ <i>Schima wallichii liukuensis</i>	1-1	<i>Randia canthioides</i>	+	<i>Elaeocarpus japonicus</i>	+	<i>Ardisia crenata</i>	
5	+ <i>Persea thunbergii</i>	+	<i>Castanopsis sieboldii</i>	+	<i>Rapanea nerifolia</i>	+	<i>Rhaphiolepis indica</i>	
6	+ <i>Symplocos lucida var. nakaharae</i>	+	<i>Rapanea nerifolia</i>	+	<i>Ilex goshiensis</i>	+	<i>Persea thunbergii</i>	
7		+	<i>Dendropanax trifidus</i>	+	<i>Syzygium buxifolium</i>	+	<i>Cinnamomum pseudo-pedunculatum</i>	
8		+	<i>Ilex goshiensis</i>	+	<i>Psychotria rubra</i>	+	<i>Antidesma japonicum</i>	
9		+	<i>Ilex liukuensis</i>	+	<i>Neolitsea aciculata</i>	+	<i>Psychotria serpens</i>	
10		+	<i>Schefflera octophylla</i>	+	<i>Euonymus lutchuensis</i>	+	<i>Lindsaea orbiculata var. commixta</i>	
11		+	<i>Persea thunbergii</i>	+	<i>Schefflera octophylla</i>	+	<i>Castanopsis sieboldii</i>	
12		+	<i>Cinnamomum doederleinii</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Photinia wrightiana</i>	
13				+	<i>Pleoblastus linearis</i>	+	<i>Smilax nervo-marginata</i>	
14				+	<i>Camellia sasanqua</i>	+	<i>Symplocos lucida var. nakaharae</i>	
15				+	<i>Rhaphiolepis indica</i>	+	<i>Pittosporum tobira</i>	
16						+	<i>Diospyros morrisiana</i>	
17						+	<i>Camellia sasanqua</i>	
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Vegetation	<i>Castanopsis sieboldii</i> / <i>Tarenna gracilipes</i> association							

Vegetation Table

No.	2	LZ Name	LZ-Wren	06-Jul-11	Surveyor			
Topography		Top of Hill			Wind	Middle	Elevation	150 m
					Sun Light	High	Direction	-
					Soil Humidity	Suitable	Slope Degree	-
					Survey Area		3 x 3 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	_____	_____	_____			D·S means "Density" and "Sociability"		
II Sub-Tree layer	_____	_____	_____					
III Shrub layer	~ 2	95	_____					
IV Herb layer	~ 0.4	10	_____					
V Moss layer	_____	_____	_____					
D·S	III	D·S	IV	D·S	D·S			
1	5·5 <i>Pleioblastus linearis</i>	1·1	<i>Dicranopteris linearis</i>					
2	1·1 <i>Vaccinium wrightii</i>	+	<i>Vaccinium wrightii</i>					
3	+ <i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Psychotria serpens</i>					
4	+ <i>Rhaphiolepis indica</i>	+	<i>Lindsaea orbiculata var. commixta</i>					
5	+ <i>Ilex goshiensis</i>	+	<i>Rapanea neriifolia</i>					
6	+ <i>Smilax china var. kuru</i>	+	<i>Microtropis japonica</i>					
7	+ <i>Schima wallichii liukuensis</i>	+	<i>Lophatherum gracile</i>					
8	+ <i>Rapanea neriifolia</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>					
9		+	<i>Cinnamomum doederleinii</i>					
10		+	<i>Pleioblastus linearis</i>					
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Vegetation		<i>Pleioblastus linearis</i> community						

Vegetation Table

No.	3	LZ Name	LZ-Wren	06-Jul-11	Surveyor			
Topography		Slope			Wind	Middle	Elevation	146 m
					Sun Light	Middle-shadow	Direction	SW60
					Soil Humidity	Suitable	Slope Degree	30°
					Survey Area		10 × 10 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	_____	_____	_____			D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 8	90	_____					
III Shrub layer	~ 3	60	_____					
IV Herb layer	~ 1.3	40	_____					
V Moss layer	_____	_____	_____					
D·S	II	D·S	III	D·S	IV	D·S		
1	3-3	<i>Schima wallichii liukuensis</i>	3-3	<i>Pleioblastus linearis</i>	3-3	<i>Cibotium barometz</i>		
2	3-3	<i>Daphniphyllum glaucescens tejsmannii</i>	2-2	<i>Ardisia quinquegona</i>	+	<i>Rhaphiolepis indica</i>		
3	1-1	<i>Syzygium buxifolium</i>	+	<i>Randia canthioides</i>	+	<i>Syzygium buxifolium</i>		
4	1-1	<i>Elaeocarpus japonicus</i>	+	<i>Euonymus lutchuensis</i>	+	<i>Cinnamomum doederleinii</i>		
5	1-1	<i>Symplocos lucida var. nakaharae</i>	+	<i>Lasianthus cyanocarpus</i>	+	<i>Euonymus lutchuensis</i>		
6	1-1	<i>Rapanea nerifolia</i>	+	<i>Ilex goshiensis</i>	+	<i>Persea thunbergii</i>		
7	+	<i>Ilex maximowicziana var. mutchagara</i>	+	<i>Tylophora japonica</i>	+	<i>Glochidion zeylanicum</i>		
8	+	<i>Dendropanax trifidus</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Rapanea nerifolia</i>		
9	+	<i>Rhus succedanea</i>	+	<i>Schima wallichii liukuensis</i>	+	<i>Carex breviscapa</i>		
10	+	<i>Euscaphis japonica</i>			+	<i>Smilax china var. kuru</i>		
11	+	<i>Diospyros morrisiana</i>			+	<i>Elaeocarpus japonicus</i>		
12	+	<i>Psychotria serpens</i>			+	<i>Ardisia quinquegona</i>		
13					+	<i>Ardisia crenata</i>		
14					+	<i>Daphniphyllum glaucescens tejsmannii</i>		
15					+	<i>Lophatherum gracile</i>		
16					+	<i>Psychotria serpens</i>		
17					+	<i>Photinia wrightiana</i>		
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Vegetation	<i>Psychotria rubra</i> - <i>Schima wallichii</i> ssp. <i>liukuensis</i> community							

Vegetation Table

No.	I	LZ Name	LZ-Courtney	23-Jun-11		Surveyor		
	Topography		Slope	Wind	Middle	Elevation	16 m	
				Sun Light	High	Direction	SW80	
				Soil Humidity	Suitable	Slope Degree	15 °	
						Survey Area	10 × 10 m	
	Layer	Height (m)	Cover (%)	Dominant species			Remarks	
	I Tree layer	~ 9	90				D-S means "Density" and "Sociability"	
	II Sub-Tree layer	~ 4	30					
	III Shrub layer							
	IV Herb layer	~ 1	80					
	V Moss layer							
	D·S	II	D·S	III	D·S	IV	D·S	
1	3·3	<i>Macaranga tanarius</i>	2·2	<i>Elaeocarpus sylvestris</i>	5·5	<i>Alocasia odora</i>		
2	2·3	<i>Ficus virgata</i>	+	<i>Cinnamomum pseudo-pedunculatum</i>	+	<i>Murraya paniculata</i>		
3	2·2	<i>Morus australis</i>	+	<i>Ficus erecta</i>	+	<i>Diplocyclos palmatus</i>		
4	+	<i>Pueraria montana</i>	+	<i>Turpinia ternata</i>	+	<i>Elaeocarpus sylvestris</i>		
5	+	<i>Stephania japonica</i>	+	<i>Pueraria montana</i>	+	<i>Pueraria montana</i>		
6	+	<i>Elaeocarpus sylvestris</i>	+	<i>Morus australis</i>	+	<i>Stephania japonica</i>		
7			+	<i>Asplenium setoi</i>	+	<i>Leucaena leucocephala</i>		
8					+	<i>Macaranga tanarius</i>		
9					+	<i>Cinnamomum pseudo-pedunculatum</i>		
10					+	<i>Euonymus japonicus</i>		
11					+	<i>Cyrtomium falcatum</i>		
12					+	<i>Thelypteris acuminata</i>		
13					+	<i>Bischofia javanica</i>		
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Vegetation		<i>Macaranga tanarius</i> community						

Vegetation Table

No.	2	LZ Name	LZ-Courtney	23-Jun-11	Surveyor		
	Topography	Slope		Wind	Middle	Elevation	24 m
				Sun Light	High	Direction	NE70
				Soil Humidity	Suitable	Slope Degree	20 °
						Survey Area	3 × 3 m
	Layer	Height (m)	Cover (%)	Dominant species		Remarks	
	I Tree layer	_____	_____	_____	_____	D-S means "Density" and "Sociability"	
	II Sub-Tree layer	_____	_____	_____	_____		
	III Shrub layer	_____	_____	_____	_____		
		_____	_____	_____	_____		
	IV Herb layer	~ 2.5	100	_____	_____		
	V Moss layer	_____	_____	_____	_____		
	D-S	IV	D-S	D-S	D-S		
1	5-S	<i>Miscanthus sinensis</i>					
2	+	<i>Clematis grata</i> var. <i>ryukyuensis</i>					
3	+	<i>Vitis ficifolia</i>					
4	+	<i>Ipomoea acuminata</i>					
5	+	<i>Alocasia odora</i>					
6	+	<i>Ficus erecta</i>					
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Vegetation	<i>Leucaena leucocephala</i> / <i>Miscanthus sinensis</i> community						

Vegetation Table

No.	I	LZ Name	LZ-Futenma	11-Jul-11	Surveyor			
	Topography	Slope		Wind	Middle	Elevation	65 m	
				Sun Light	High	Direction	NW40	
				Soil Humidity	Suitable	Slope Degree	5 °	
						Survey Area	10 × 10 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	_____	_____	_____	_____	_____	D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 8	80	_____	_____	_____			
III Shrub layer	~ 2.5	30	_____	_____	_____			
IV Herb layer	~ 1	50	_____	_____	_____			
V Moss layer	_____	_____	_____	_____	_____			
D·S	II	D·S	III	D·S	IV	D·S		
1	3-3 <i>Macaranga tanarius</i>	1-1	<i>Bischofia javanica</i>	3-3	<i>Piper kadzura</i>			
2	3-3 <i>Bischofia javanica</i>	1-1	<i>Psychotria manillensis</i>	2-2	<i>Alocasia odora</i>			
3	2-1 <i>Ficus virgata</i>	1-1	<i>Turpinia ternata</i>	+·2	<i>Psychotria manillensis</i>			
4	1-1 <i>Elaeocarpus sylvestris</i>	+	<i>Elaeocarpus sylvestris</i>	+	<i>Tarenna gracilipes</i>			
5	+·2 <i>Ipomoea acuminata</i>	+	<i>Cinnamomum pseudo-pedunculatum</i>	+	<i>Cinnamomum pseudo-pedunculatum</i>			
6	+·2 <i>Celastrus punctatus</i>	+	<i>Pueraria montana</i>	+	<i>Elaeocarpus sylvestris</i>			
7	+	<i>Ficus microcarpa</i>	+	<i>Celastrus punctatus</i>	+	<i>Persea thunbergii</i>		
8	+	<i>Celtis boninensis</i>	+	<i>Smilax bracteata</i>	+	<i>Pittosporum tobira</i>		
9	+	<i>Pueraria montana</i>	+	<i>Ipomoea acuminata</i>	+	<i>Murraya paniculata</i>		
10	+	<i>Clematis grata var. ryukyuensis</i>	+	<i>Sinomenium acutum</i>	+	<i>Elaeagnus thunbergii</i>		
11	+	<i>Sinomenium acutum</i>	+	<i>Pueraria montana</i>	+	<i>Ficus erecta</i>		
12	+	<i>Vitis ficifolia</i>	+	<i>Pittosporum tobira</i>	+	<i>Celtis boninensis</i>		
13	+	<i>Piper kadzura</i>			+	<i>Rhaphiolepis indica</i>		
14					+	<i>Ipomoea acuminata</i>		
15					+	<i>Celastrus punctatus</i>		
16					+	<i>Diplocyclos palmatus</i>		
17					+	<i>Alpinia zerumbet</i>		
18					+	<i>Lygodium japonicum var. microstachyum</i>		
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Vegetation	<i>Macaranga tanarius</i> community							

Vegetation Table

No.	I	LZ Name	LZ-Kinser	18-Jun-11		Surveyor		
	Topography	Slope		Wind	Middle	Elevation	24 m	
				Sun Light	High	Direction	N	
				Soil Humidity	Suitable	Slope Degree	15°	
						Survey Area	10 × 10 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	_____	_____	_____	_____	_____	D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 8	80	_____	_____	_____			
III Shrub layer	~ 3	40	_____	_____	_____			
IV Herb layer	~ 0.8	40	_____	_____	_____			
V Moss layer	_____	_____	_____	_____	_____			
D·S	II	D·S	III	D·S	IV	D·S		
1	4·4 <i>Macaranga tanarius</i>	2·2	<i>Pittosporum tobira</i>	3·3	<i>Alocasia odora</i>			
2	1·1 <i>Bischofia javanica</i>	1·1	<i>Murraya paniculata</i>	1·1	<i>Ipomoea acuminata</i>			
3	1·1 <i>Leucaena leucocephala</i>	1·1	<i>Ficus erecta</i>	+·2	<i>Bischofia javanica</i>			
4	+ <i>Morus australis</i>	+ <i>Morus australis</i>		+ <i>Cinnamomum pseudo-pedunculatum</i>				
5	+ <i>Pittosporum tobira</i>	+ <i>Ficus virgata</i>		+ <i>Celtis boninensis</i>				
6	+ <i>Mallotus philippensis</i>	+ <i>Ligustrum japonica</i>		+ <i>Ficus erecta</i>				
7	+ <i>Ipomoea acuminata</i>	+ <i>Citrus depressa</i>		+ <i>Alpinia zerumbet</i>				
8	+ <i>Ficus erecta</i>	+ <i>Ipomoea acuminata</i>		+ <i>Zehneria liukuensis</i>				
9	+ <i>Clematis grata</i> var. <i>ryukyuensis</i>	+ <i>Clematis grata</i> var. <i>ryukyuensis</i>		+ <i>Diplocyclos palmatus</i>				
10				+ <i>Diospyros egbert-walkeri</i>				
11				+ <i>Leucaena leucocephala</i>				
12				+ <i>Pittosporum tobira</i>				
13				+ <i>Stephanotis lutechuensis</i>				
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Vegetation	<i>Macaranga tanarius</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Kinser	18-Jun-11	Surveyor			
Topography		Slope			Wind	Middle	Elevation	16 m
					Sun Light	High	Direction	SE20
					Soil Humidity	Suitable	Slope Degree	40°
					Survey Area		15 × 15 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	~ 11	90				D·S means "Density" and "Sociability"		
II Sub-Tree layer	~ 6	30						
III Shrub layer	~ 2	20						
IV Herb layer	~ 0.6	60						
V Moss layer								
D·S	I	D·S	II	D·S	III	D·S	IV	
1	3-4 <i>Ficus microcarpa</i>	2-2	<i>Ficus virgata</i>	1-1	<i>Cinnamomum pseudo-pedunculatum</i>	4-4	<i>Piper kadzura</i>	
2	1-2 <i>Ficus virgata</i>	1-1	<i>Litsea japonica</i>	1-1	<i>Litsea japonica</i>	2-2	<i>Trechospermum asiaticum</i> var. <i>liukiuense</i>	
3	1-1 <i>Rhus succedanea</i>	+	<i>Piper kadzura</i>	+	<i>Bischofia javanica</i>	+2	<i>Cinnamomum pseudo-pedunculatum</i>	
4	1-1 <i>Celtis boninensis</i>	+	<i>Ipomoea acuminata</i>	+	<i>Ficus erecta</i>	+	<i>Ipomoea acuminata</i>	
5	1-1 <i>Bischofia javanica</i>	+	<i>Cinnamomum pseudo-pedunculatum</i>	+	<i>Diospyros egbert-walkerii</i>	+	<i>Alpinia zerumbet</i>	
6	+	<i>Piper kadzura</i>	+	<i>Bischofia javanica</i>	+	<i>Murraya paniculata</i>	+	<i>Alocasia odora</i>
7	+	<i>Bauhinia japonica</i>	+	<i>Murraya paniculata</i>	+	<i>Callicarpa japonica</i> var. <i>luxurians</i>	+	<i>Breynia vitis-idaea</i>
8	+	<i>Ipomoea acuminata</i>	+	<i>Paederia scandens</i>	+	<i>Vitis ficifolia</i>	+	<i>Mallotus philippensis</i>
9	+	<i>Stephanotis lutchuensis</i>			+	<i>Paederia scandens</i>	+	<i>Litsea japonica</i>
10							+	<i>Liriope muscari</i>
11							+	<i>Murraya paniculata</i>
12							+	<i>Lygodium japonicum</i> var. <i>microstachyum</i>
13							+	<i>Leucaena leucoccephala</i>
14							+	<i>Pteris ryukyuensis</i>
15							+	<i>Thelypteris acuminata</i>
16							+	<i>Boehmeria nivea</i> var. <i>nipponivea</i>
17							+	<i>Morus australis</i>
18							+	<i>Adiantum capillus-veneris</i>
19							+	<i>Asplenium setoi</i>
20							+	<i>Rhaphiolepis indica</i>
21							+	<i>Solanum spirale</i>
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Vegetation	<i>Ficus microcarpa</i> - <i>Ficus virgata</i> community							

Vegetation Table

No.	I	LZ Name	LZ-Plaza	11-Jul-11		Surveyor		
Topography		Top of Slope			Wind	Middle	Elevation	118 m
					Sun Light	Middle-shadow	Direction	SW80
					Soil Humidity	Suitable	Slope Degree	20°
							Survey Area	10 × 10 m
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 9	90	_____	_____	_____			
III Shrub layer	~ 4	40	_____	_____	_____			
	~	_____	_____	_____	_____			
IV Herb layer	~ 0.8	20	_____	_____	_____			
	_____	_____	_____	_____	_____			
V Moss layer	_____	_____	_____	_____	_____			
D·S	II	D·S	III	D·S	IV	D·S		
1	4·4 <i>Cinnamomum pseudo-pedunculatum</i>	2·2	<i>Elaeocarpus sylvestris</i>	2·3	<i>Trachelospermum asiaticum</i> var. <i>liukuense</i>			
2	1·1 <i>Elaeocarpus sylvestris</i>	1·1	<i>Rhaphiolepis indica</i>	+	<i>Alpinia zerumbet</i>			
3	1·1 <i>Rhus succedanea</i>	1·1	<i>Cinnamomum pseudo-pedunculatum</i>	+	<i>Ficus erecta</i>			
4	+ <i>Kalopanax septemlobus</i> var. <i>luchuensis</i>	+	<i>Mallotus philippensis</i>	+	<i>Celastrus punctatus</i>			
5	+ <i>Pinus luchuensis</i>	+	<i>Ficus erecta</i>	+	<i>Mallotus philippensis</i>			
6	+ <i>Ficus virgata</i>	+	<i>Planchonella obovata</i>	+	<i>Ficus pumila</i>			
7	+ <i>Macaranga tanarius</i>	+	<i>Murraya paniculata</i>	+	<i>Heterosmilax japonica</i>			
8	+ <i>Trachelospermum asiaticum</i> var. <i>liukuense</i>	+	<i>Ficus pumila</i>	+	<i>Elaeagnus thunbergii</i>			
9	+ <i>Ipomoea acuminata</i>	+	<i>Trachelospermum asiaticum</i> var. <i>liukuense</i>	+	<i>Smilax sebeana</i>			
10	+ <i>Bischofia javanica</i>	+	<i>Ipomoea acuminata</i>	+	<i>Bischofia javanica</i>			
11		+	<i>Antidesma japonicum</i>	+	<i>Alocasia odora</i>			
12		+	<i>Psychotria manillensis</i>	+	<i>Pittosporum tobira</i>			
13		+	<i>Ardisia sieboldii</i>					
14		+	<i>Lygodium japonicum</i> var. <i>microstachyum</i>					
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Vegetation	<i>Psychotria manillensis</i> - <i>Cinnamomum pseudo-ped</i> community							

Vegetation Table

No.	2	LZ Name	LZ-Plaza	16-Aug-11		Surveyor		
	Topo.	Valley		Wind	Middle	Elevation	100 m	
				Sun Light	High	Direction	-	
				Soil Humidity	Suitable	Slope Degree	-	
						Survey Area	10 × 10 m	
Layer	Height (m)	Cover (%)	Dominant species			Remarks		
I Tree layer	_____	_____	_____	_____	_____	D-S means "Density" and "Sociability"		
II Sub-Tree layer	~ 9	80	_____	_____	_____			
III Shrub layer	~ 3	20	_____	_____	_____			
IV Herb layer	~ 1	70	_____	_____	_____			
V Moss layer	_____	_____	_____	_____	_____			
D·S	II	D·S	III	D·S	IV	D·S		
1	4-4 <i>Bischofia javanica</i>	1-1	<i>Elaeocarpus sylvestris</i>	3-3	<i>Alocasia odora</i>			
2	1-1 <i>Macaranga tanarius</i>	1-1	<i>Turpinia ternata</i>	2-2	<i>Psychotria manillensis</i>			
3	1-1 <i>Elaeocarpus sylvestris</i>	+	<i>Bischofia javanica</i>	1-1	<i>Trachelospermum asiaticum</i> var. <i>liukiense</i>			
4	+ <i>Turpinia ternata</i>	+	<i>Gardenia jasminoides</i> f. <i>grandiflora</i>	1-1	<i>Piper kadzura</i>			
5	+ <i>Clematis grata</i> var. <i>ryukyuensis</i>	+	<i>Morus australis</i>	1-1	<i>Marsdenia tinctoria</i> var. <i>tomentosa</i>			
6	+ <i>Ipomoea acuminata</i>	+	<i>Ipomoea acuminata</i>	+·2	<i>Ipomoea acuminata</i>			
7	+ <i>Leucaena leucocephala</i>	+	<i>Trichosanthes ovigera</i>	+	<i>Bischofia javanica</i>			
8	+ <i>Ficus erecta</i>	+	<i>Paederia scandens</i>	+	<i>Cinnamomum pseudo-pedunculatum</i>			
9	+ <i>Paederia scandens</i>			+	<i>Celtis boninensis</i>			
10				+	<i>Turpinia ternata</i>			
11				+	<i>Diplocyclos palmatus</i>			
12				+	<i>Zehneria liukiensis</i>			
13				+	<i>Smilax china</i> var. <i>kuru</i>			
14				+	<i>Polygonum chinense</i>			
15				+	<i>Paederia scandens</i>			
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Vegetation	<i>Macaranga tanarius</i> community							

Vegetation Table

No.	I	LZ Name	LZ-Schwab 3	16-Aug-11	Surveyor			
	Topography	Slope		Wind	Middle	Elevation	25 m	
				Sun Light	high	Direction	NE40	
				Soil Humidity	Suitable	Slope Degree	30°	
						Survey Area	15 × 15 m	
	Layer	Height (m)	Cover (%)	Dominant species		Remarks		
	I Tree layer	~ 11	60			D·S means "Density" and "Sociability"		
	II Sub-Tree layer	~ 8	60					
	III Shrub layer	~ 3	30					
	IV Herb layer	~ 0.9	70					
	V Moss layer							
	D·S	I	D·S	II	D·S	III	D·S	IV
1	3·3	<i>Persea thunbergii</i>	3·3	<i>Persea thunbergii</i>	2·2	<i>Gardenia jasminoides f. grandiflora</i>	3·3	<i>Thelypteris parasitica</i>
2	1·1	<i>Pinus luchuensis</i>	3·3	<i>Daphniphyllum glaucescens teijsmannii</i>	1·1	<i>Ficus erecta</i>	2·2	<i>Alocasia odora</i>
3	1·1	<i>Symplocos lucida var. nakaharae</i>	+	<i>Schefflera octophylla</i>	+	<i>Schefflera octophylla</i>	1·1	<i>Lygodium japonicum var. microstachyum</i>
4	+	<i>Styrax japonicus</i>	+	<i>Morus australis</i>	+	<i>Ficus benguetensis</i>	+	<i>Glochidion zeylanicum</i>
5	+	<i>Pueraria montana</i>	+	<i>Ficus ampelas</i>	+	<i>Arenga tremula var. engleri</i>	+	<i>Pittosporum tobira</i>
6			+	<i>Ficus septica</i>	+	<i>Daphniphyllum glaucescens teijsmannii</i>	+	<i>Cinnamomum pseudo-pedunculatum</i>
7			+	<i>Gardenia jasminoides f. grandiflora</i>	+	<i>Euscaphis japonica</i>	+	<i>Pueraria montana</i>
8			+	<i>Elaeocarpus japonicus</i>	+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Psychotria serpens</i>
9			+	<i>Symplocos lucida var. nakaharae</i>	+	<i>Elaeocarpus sylvestris</i>	+	<i>Gardenia jasminoides f. grandiflora</i>
10			+	<i>Rhaphiolepis indica</i>	+	<i>Pittosporum tobira</i>	+	<i>Macaranga tanarius</i>
11			+	<i>Pueraria montana</i>	+	<i>Ilex goshiensis</i>	+	<i>Mallotus japonicus</i>
12					+	<i>Persea thunbergii</i>	+	<i>Lophatherum gracile</i>
13					+	<i>Lygodium japonicum var. microstachyum</i>	+	<i>Persea thunbergii</i>
14					+	<i>Smilax china var. kuru</i>	+	<i>Smilax china var. kuru</i>
15							+	<i>Elaeagnus thunbergii</i>
16							+	<i>Ficus erecta</i>
17							+	<i>Gahnia tristis</i>
18							+	<i>Alpinia intermedia</i>
19							+	<i>Pteris fauriei</i>
20							+	<i>Marsdenia tinctoria var. tomentosa</i>
21							+	<i>Mussaenda parviflora</i>
22							+	<i>Trichosanthes ovigera</i>
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Vegetation	<i>Psychotria rubra</i> - <i>Schima wallidhii</i> ssp. <i>liukuensis</i> community							