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About FROGWATCH

The ACT & Region FROGWATCH program is a community frog-monitoring program that conducts a frog census in spring each year. The major aim of the program is to engage community volunteers to monitor frogs in the region in order to generate significant information about the presence and abundance of frog populations.
Frogs are widely recognised as indicators of environmental health because adult frogs, their eggs and tadpoles may be susceptible to a range of aquatic pollutants (Duellman and Trueb, 1994; Tyler, 1994). There are two main ways in which frogs can behave as indicators: 1) measures of frog presence/absence and/or species richness, and 2) evidence of developmental abnormalities.

The presence of amphibians can indicate good water quality and the availability of high quality habitat, whereas the absence or decline of frog populations can indicate unhealthy or degraded catchments. A number of studies have used frogs as environmental indicators (see Beebee and Griffiths, 2005; Boyer and Grue, 1995; DeGarady and Halbrook, 2006; Kavanagh and Stanton, 2005; Lauck, 2006; Lofvenhaft et al., 2004; Price et al., 2007; Weygoldt, 1989). For example, Jansen & Healey (2003) measured frog species richness, abundance and reproductive success to determine the effect of grazing on wetland condition (as measured by parameters such as vegetation and bank structure and complexity, and water quality).

Figure 1: Deformed *L. tasmaniensis*

Frogs are known to develop tissue and skeletal abnormalities, such as extra digits or limbs, in response to the presence of aquatic pollutants. However, it can be difficult to determine the exact cause of such developmental abnormalities, particularly as amphibian populations naturally display relatively high rates of developmental abnormalities (approximately 3% in any given population) (Tyler, 1994). Evidence of one such abnormality was found in a *Limnodynastes tasmaniensis* at the FAD300 site in 2009, as can be seen in Figure 1.

The Ginninderra Catchment Group initiated the FROGWATCH Census Program in 2002, when approximately 40 volunteers monitored frog populations at 29 sites. Since then, the program has expanded dramatically to provide an annual snapshot of frog species richness and abundance in the ACT and surrounding NSW region. The information gathered by the FROGWATCH Census is used to identify future community monitoring and action priorities, particularly in relation to the creation and protection of frog-friendly habitats in the ACT and surrounding region.

Information Objectives

- to increase understanding of the distribution and abundance of frogs in the ACT & Region
- to increase knowledge and understanding about the health of our wetlands and waterways
- to monitor the impacts of bushfires and drought on our local ecosystems and catchments
- to monitor the impacts of bushfires on local wildlife and track recovery rates
- to provide supplementary information to the ACT Government's professional frog monitoring program and
- to continue the collection of important frog monitoring data to enhance previous studies.

Community Capacity Building Objectives

- to provide an exciting, hands-on opportunity for community members to engage in natural resource management (NRM)
- to provide opportunities for community involvement in wildlife monitoring
- to provide CAMPFIRE (Community Assessment Monitoring Program for Fire Impacted River Ecology) and Waterwatch groups with the opportunity to broaden their monitoring activities
- to increase community capacity to understand a range of important environmental issues such as biodiversity, introduced species, water quality, habitat loss and other impacts on natural ecosystems
- to facilitate community monitoring and evaluation of NRM on-ground works, e.g. wetland development, willow removal and re-vegetation projects
- to increase awareness of frog populations and their habitat requirements, and provide support for the creation and protection of high quality habitat and
- to ensure that FROGWATCH participants prevent the spread of frog pathogens.

Methods

All new FROGWATCH participants must attend an Introductory Training Seminar before commencing monitor activities. Keen Frogwatchers can partake in a field trip to gain extra experience in identification techniques, estimating abundance and identifying important habitat components. Seminar participants learn about:

- why and how frogs call
- frog identification techniques
- how to estimate frog abundance and
- the importance of monitoring.

Additionally, volunteers learn about all procedures for undertaking and recording FROGWATCH observations including:

- basic safety guidelines
- site selection information
- how to fill in data sheets and take audio recordings and
- procedures for preventing the spread of potential frog pathogens.

All FROGWATCH volunteers receive a Community FROGWATCH Census Kit which contains:

- The FROGWATCH monitoring plan
- Information about frog species of the ACT and surrounding Region
- Pathogen control guidelines
- Procedures for monitoring frog calls
- A list of available frog resources
- FROGWATCH Field Data Sheets and other forms
- "Glove-box Guide to Frogs of the ACT Region"
- Audio CD "Frog Calls of the ACT and South East NSW" by E. Slater
- FROGWATCH thermometer.

Frogwatch has registered monitoring sites across the ACT and surrounding NSW Region. Participants are required to registered their FROGWATCH site(s) and intended monitoring dates online to avoid double bookings. Monitoring-priority is given to 30 'Key FROGWATCH Sites' to ensure consistent and comprehensive monitoring from year to year, producing statistically robust data to permit in-depth analysis over the longer term. Once all key sites are booked for monitoring, volunteers can register to monitor at other established FROGWATCH sites.

The annual Frogwatch Census monitors frog calls during all of October, with a traditional focus on National Water Week (starting with the third Sunday in October). During Census Week a minimum of 3 monitoring events is required for key sites and a repeat visit is encouraged for all other sites. Not all established Frogwatch sites are monitored every year. This report summarizes all monitoring undertaken between the 1th and 31th of October this year. Some Frogwatch sites are monitored regularly throughout the year. The results of these events can be found on our webpage.

All monitoring takes place in the first 2-3 hours after dark and consists of an audio recording of frog calls for 2-5 minutes and the measurement of some environmental parameters, recorded onto official Field Data Sheets (e.g. Site location, Habitat type, Vegetation, Weather conditions, and Frog species heard/observe). All data is then submitted online for processing (see below). Audio recordings and subsequent frog identifications are checked for accuracy by the FROGWATCH Coordinator, while staff from the ACT Government and the University of Canberra confirm unusual species or calls difficult to identify. Appendix 3 shows a monitoring summery for all Frogwatch Census sites. This includes a species list for each site surveyed in October this year. It also shows the monitoring history of every Frogwatch site and gives an understanding of how regular individual sites have been visited over the past years.

Quality Assurance & Quality Control

Data accuracy and precision is assured by strict quality control processes, including:

Detailed information about FROGWATCH procedures and guidelines are provided to all participants at the FROGWATCH training events, and in the FROGWATCH Kit.

Monitoring of calls at all observed sites is undertaken on at least one evening during the Census week, during the first two to three hours after dark.

Audio recordings from each monitoring event are used to confirm identity of species and number of individuals calling.

Each audio recording is verified by the FROGWATCH Coordinator with assistance from ACT Government and University of Canberra staff when needed.

Any unconfirmed data is excluded from this report.

In 2011, the majority of all monitoring reports were entered online (eCensus). Compared to previous years the amount of handed in hard copies was minute (Figure 4). The online registration and data entry is a work in progress and we do thank all the volunteers for their valuable suggestions and their patience, as this new system matures. eCensus significantly reduces data handling time and errors. It is a crucial tool in the future online availability of FROGWATCH data as it allows faster processing of Census information, which means that communities and decision makers have access to results earlier.

Figure 4: Audio recordings from the 2009 (before eCensus), 2010 (introduction of eCensus) and 2011 FROGWATCH Census

Summary of Results

In 2011, approximately 110 volunteers participated in the Census, monitoring at 116 sites. Of these, 90 were located within the ACT border, while the remaining 26 sites were situated in the surrounding NSW region. FROGWATCH site codes, names and locations are detailed in Appendix 2. A total of 250 field data sheets were completed and submitted.

The previous year had been a long awaited wet year breaking the drought with rainfall well above the 20-year yearly average with 959.6mm instead of 629mm (BOM, for Canberra Airport Australian Weather Station (AWS)). In 2011 the yearly average was 568.7mm for the Canberra Airport AWS and 899.8mm for the Tuggeranong AWS. However, in both areas the typical winter rains arrived later than usual. During the FROGWATCH Census 2011, most dams, creeks and rivers were low in water. The edges of the water bodies were often bare and without any plant cover and therefore less inviting as breeding habitat for frogs. The main winter rains arrived in Canberra after the Census week, in early November, after which the frogs became very active, many even calling during daytime.

Species Detected

A total of 8 species were detected throughout the ACT & Region this spring (Table 1). As in all previous years the three most commonly detected species were the **Spotted grass frog** (*L. tasmaniensis*), **Plains froglet** (*Crinia parinsignifera*) and **Common eastern froglet** (*Crinia signifera*). These species have increased their presence at monitored sites from over 50% to over 63%. (Table 1).

In 2011 the occurrence of the whistling tree frog was of particular interest. As part of his PhD research, Ben Scheele from the ANU, was repeating a survey of the ACT and surrounding region for this species. A similar survey of the same region had been done 30 and 15 years ago. Whistling tree frogs had gone through - what seems a dramatic decline over the past 20 years, possibly due to the spread of the chytrid fungus. Ben's research, as well as our FROGWATCH data implies that the species might be recovering from their population decline.

Table 1: Frog species detected during the 2011 FROGWATCH Census, and each species' overall abundance

Species	Common name	Detection frequency (# sites)	% of sites detected at
Limnodynastes tasmaniensis	Spotted Grass Frog	76	66
Crinia parinsignifera	Plains Froglet	74	64
Crinia signifera	Common Eastern Froglet	73	63
Litoria verreauxii	Whistling Tree Frog	38	33
Uperoleia laevigata	Smooth Toadlet	34	29
Litoria peronii	Peron's Tree Frog	32	28
Limnodynastes dumerilii	Banjo Frog or Pobblebonk	28	24
Limnodynastes peronii	Striped Marsh Frog	12	10
No calls recorded		16	14

Species Diversity & Abundance

An abundance of frogs at a particular site can indicate the availability of good quality habitat that fulfils the requirements of a number of different species. On-going observations of frog species diversity at FROGWATCH sites can highlight sites of significant environmental value, and can assist with decision-making, priority setting and management of an area.

Min # of species per site	0
Maximum # of species per site	7
Mean # of species per site	3.16
Median # of species per site	3

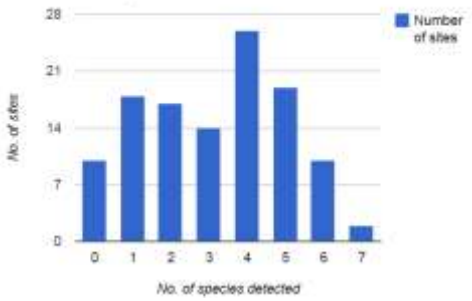

Figure 6: Relative abundance of species at sites surveyed during the 2011 FROGWATCH Census

The greatest number of species found at any one site during the 2011 FROGWATCH Census was 7 species. A consistent result since 2009. However, the number of sites with a reported presence of 7 species has decreased over the past 3 years from 6 sites in 2009 to 4 sites in 2010 and to 2 sites in 2011.
The 2 sites with 7 frog species:

- Buttles Creek, Queanbeyan, FMC040
- John Bisset Propperty Dam, JBD100. A new site to the program.

These sites- as the species rich sites in previous years - illustrate the significance of the rural fringes in our region. River and dams both inside and outside of reserve systems feature in this list.

Species Results

Limnodynastes tasmaniensis[1]

Spotted Grass Frog

- Blotched appearance with dark & light markings.
- Red or orange stripe along spine.
- Length = 50mm.
- Call = “uck, uck, uck”.

Census year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of sites where recorded	9	64	91	102	55	95	79	121	122	76
% of total sites surveyed	31	53	67	71	33	59	58	75	65	66
Median # of individuals observed	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	5 to 20

Side codes with corresponding abundance

ANU012	5 to 20	FAD300	5 to 20	MFL003	5 to 20
ANU020	1 to 5	FBM400	5 to 20	MFL004	5 to 20
ANU023	1 to 5	FER200	1 to 5	MFL005	1 to 5
ANU042	1 to 5	FGC030	5 to 20	MFL011	50 to 100
ARA200	1 to 5	FGC090	1 to 5	MFL013	50 to 100
BAR050	5 to 20	FGC091	5 to 20	MFL017	1 to 5
BRU200	1 to 5	FGD020	1 to 5	MND100	5 to 20
BSW001	1 to 5	FGD040	1 to 5	MUR100	1 to 5
BUR500	1 to 5	FMC040	1 to 5	MUR200	1 to 5
BUR700	5 to 20	FMC230	1 to 5	MUR250	1 to 5
CAV100	1 to 5	FMW010	5 to 20	MYA050	5 to 20
CDD100	1 to 5	GUN100	5 to 20	MYR100	1 to 5
CDD200	1 to 5	GUN110	1 to 5	MYR300	1 to 5
CEQ100	5 to 20	GUN700	1 to 5	NAD034	1 to 5
CEQ200	20 to 50	HAL001	1 to 5	NAS100	1 to 5
CFR200	5 to 20	HAL002	1 to 5	ORA002	1 to 5
CFR300	5 to 20	HAR001	20 to 50	PCF001	5 to 20
CHC300	5 to 20	ICH001	1 to 5	PIN100	5 to 20
CMC100	5 to 20	JBD100	5 to 20	PVB100	50 to 100
CMC600	5 to 20	JBD200	5 to 20	QBN010	5 to 20
CMC700	20 to 50	JER100	5 to 20	RCD001	1 to 5
CRA300	5 to 20	JER500	5 to 20	STP100	5 to 20
CTT100	1 to 5	KIP001	1 to 5	WEE004	5 to 20
CTT300	1 to 5	LDM100	5 to 20	WEE100	1 to 5
DGP001	20 to 50	MFL001	1 to 5		
DIW100	5 to 20	MFL002	5 to 20		

Crinia parinsignifera[1]

Plains Froglet

- Highly variable species ranging from plain-coloured to strongly-marked individuals with raised ridges & bumps.
- Length = 30mm.
- Call = drawn-out “wwrreeeek” repeated regularly.

Census year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of sites where detected	11	57	84	87	56	85	78	98	112	74
% of total sites surveyed	38	48	62	60	34	53	57	61	60	64
Median # of individuals observed	1 to 5	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	1 to 5	5 to 20	5 to 20	5 to 20

Side codes with corresponding abundance

ANU022	1 to 5	FGD040	20 to 50	MIT100	5 to 20
ARA017	1 to 5	FGG010	5 to 20	MND100	5 to 20
ARA100	5 to 20	FMC040	1 to 5	MOL600	1 to 5
ARA200	5 to 20	FMC220	1 to 5	MOL602	20 to 50
BAR050	5 to 20	FMC230	1 to 5	MUR100	5 to 20
BMT100	1 to 5	GUN100	1 to 5	MUR250	1 to 5
BUR500	20 to 50	GUN110	5 to 20	MYA050	5 to 20
BUR700	20 to 50	GUN700	20 to 50	MYR100	5 to 20
CDD100	20 to 50	HAL002	1 to 5	MYR300	20 to 50
CDD200	5 to 20	HAR001	20 to 50	NAD011	5 to 20
CEQ200	20 to 50	ICH001	1 to 5	NAD034	5 to 20
CFR200	50 to 100	JBD100	5 to 20	ORA002	1 to 5
CMC100	5 to 20	JBD200	5 to 20	PCF001	1 to 5
CMC600	20 to 50	JER100	5 to 20	PIN100	5 to 20
CMC700	20 to 50	JER500	1 to 5	PVB100	100+
CRA300	20 to 50	LDM100	5 to 20	QBN010	5 to 20
DGP001	20 to 50	MFL001	50 to 100	RCD001	5 to 20
DIW100	1 to 5	MFL002	5 to 20	STP100	20 to 50
FAD300	1 to 5	MFL003	20 to 50	TRA100	1 to 5
FBM100	1 to 5	MFL004	5 to 20	UMD004	1 to 5
FBM400	50 to 100	MFL005	20 to 50	UMD005	5 to 20
FER200	1 to 5	MFL007	5 to 20	WEE002	1 to 5
FGC009	1 to 5	MFL011	50 to 100	WEE004	5 to 20
FGC030	5 to 20	MFL013	20 to 50	WEE100	20 to 50
FGD020	1 to 5	MFL017	20 to 50		

Crinia signifera[1]

Common Eastern Froglet

- Variable colouration from grey-brown to reddish, and can be smooth or covered in ridges.
- Underside granular with black & white blotches.
- Length = 25-30mm.
- Call = repeated clicking “crick, crick, crick”.

Census year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of sites where detected	17	76	94	96	51	81	78	111	132	73
% of total sites surveyed	59	63	69	67	31	51	46	48	71	63
Median # of individuals	1 to 5	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20	1 to 5	5 to 20	5 to 20	5 to 20

Side codes with corresponding abundance

ANU012	5 to 20	FER200	5 to 20	MFL017	5 to 20
ANU018	1 to 5	FGC009	5 to 20	MIT100	1 to 5
ANU021	1 to 5	FGC030	5 to 20	MND100	5 to 20
ARA017	1 to 5	FGC040	1 to 5	MOL602	5 to 20
BAR050	20 to 50	FGC090	1 to 5	MUR100	1 to 5
BSW001	1 to 5	FGC091	5 to 20	MUR250	1 to 5
BUR500	5 to 20	FGD020	1 to 5	MYA050	1 to 5
BUR600	1 to 5	FGD040	20 to 50	MYR100	1 to 5
BUR700	20 to 50	FGG010	1 to 5	ORA002	1 to 5
CAV100	5 to 20	FMC040	5 to 20	PCF001	5 to 20
CDD100	5 to 20	FMC230	1 to 5	PIN100	5 to 20
CDD200	1 to 5	GUN100	1 to 5	QBN010	5 to 20
CEQ100	1 to 5	GUN110	1 to 5	QBN200	20 to 50
CEQ200	5 to 20	GUN700	1 to 5	QBN450	20 to 50
CFR200	5 to 20	JBD100	20 to 50	RCD001	1 to 5
CFR300	20 to 50	JBD200	20 to 50	STP100	1 to 5
CHC300	5 to 20	JER100	5 to 20	TAY500	5 to 20
CMC600	20 to 50	JER500	20 to 50	TRA100	1 to 5
CRA300	1 to 5	KIP001	5 to 20	UMD004	5 to 20
CTT300	20 to 50	MFL001	1 to 5	UMD005	5 to 20
DGP001	5 to 20	MFL002	1 to 5	UMD007	5 to 20
DIW100	1 to 5	MFL003	1 to 5	WEE002	5 to 20
FAD300	1 to 5	MFL004	5 to 20	WEE004	5 to 20
FBM400	5 to 20	MFL005	5 to 20		
FER100	1 to 5	MFL013	5 to 20		

Limnodynastes dumerili[1]

Eastern Banjo Frog or **Pobblebonk**

- Grey-brown in colour with a large glandular strip running from the top of the shoulder to the mouth.
- Sides of body with blotched markings.
- Length = up to 85mm.
- Call = repeated “bonk” or “thunk” from the water.

Census year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of sites where recorded	17	43	26	60	27	47	40	57	69	27
% of total sites surveyed	59	36	19	42	16	29	29	35	37	24
Median # of individuals observed	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5

Side codes with corresponding abundance

CFR200	1 to 5
CFR300	5 to 20
CTT300	1 to 5
FGC009	1 to 5
FGC030	1 to 5
FGC040	1 to 5
FGC090	1 to 5
FGC091	1 to 5
FGG010	5 to 20
FGW150	1 to 5
FMC040	5 to 20
GIN024	1 to 5
GUN100	1 to 5
HAL002	1 to 5
ICH001	1 to 5
JBD100	1 to 5
JER100	1 to 5
KIP001	5 to 20
MND100	1 to 5
MYA050	1 to 5
NAD011	1 to 5
ORA002	1 to 5
PCF001	1 to 5
QBN010	1 to 5
QBN200	1 to 5
QBN450	1 to 5
UMD004	1 to 5

Litoria verreauxii[1]

Whistling Tree Frog

- Dark brown or black stripe in front of the eye to the base of the forelimb.
- Broad brownish mid-dorsal marking.
- Length = 30mm.
- Call = repeated whistling “cree…, cree…, cree…”.

Census year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of sites where recorded	5	14	32	11	30	33	32	34	23	38
% of total sites surveyed	17	12	24	8	18	21	23	21	12	33
Median # of individuals observed	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5

Side codes with corresponding abundance

BAR050	1 to 5	KIP001	1 to 5
CDD200	1 to 5	MFL001	1 to 5
CRA300	1 to 5	MFL002	1 to 5
CTP450	1 to 5	MFL003	1 to 5
CTT300	1 to 5	MFL004	1 to 5
DGP001	5 to 20	MFL005	5 to 20
FER200	1 to 5	MFL007	1 to 5
FGC009	1 to 5	MFL011	1 to 5
FGC030	5 to 20	MFL017	1 to 5
FGC090	5 to 20	MOL600	1 to 5
FGC091	1 to 5	MOL602	1 to 5
FGG010	1 to 5	MUR100	1 to 5
FMC200	1 to 5	MYR300	1 to 5
GUN700	1 to 5	QBN200	1 to 5
HAL001	1 to 5	QBN450	5 to 20
HAR001	1 to 5	STP100	1 to 5
JBD100	1 to 5	WEE002	1 to 5
JBD200	1 to 5	WEE004	5 to 20
JER100	1 to 5	WEE100	1 to 5

Litoria peronii[1]

Peron's Tree Frog

- Broad round toe discs, yellow & black mottling behind the back legs, & tiny emerald flecks on the dorsal surface.
- Length = 50mm.
- Call = loud, descending rattle or cackle.

Census year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of sites where recorded	3	27	36	44	28	52	31	57	32	32
% of total sites surveyed	10	23	26	31	17	33	23	35	12	28
Median # of individuals observed	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5

Side codes with corresponding abundance

ARA100	1 to 5	MFL003	5 to 20
CAV100	1 to 5	MFL005	1 to 5
CDD200	1 to 5	MFL011	5 to 20
CEQ200	5 to 20	MFL013	5 to 20
CFR200	5 to 20	MFL017	5 to 20
CMC100	1 to 5	MUR100	1 to 5
CMC600	1 to 5	MUR250	1 to 5
DGP001	5 to 20	MYR300	5 to 20
FBM400	1 to 5	ORA002	1 to 5
FGD040	1 to 5	QBN010	5 to 20
FMC040	1 to 5	RCD001	1 to 5
GUN700	1 to 5	STP100	1 to 5
JBD100	1 to 5	TRA100	1 to 5
LDM100	5 to 20	UMD005	1 to 5
MFL001	1 to 5	WEE004	1 to 5
MFL002	5 to 20	WEE100	1 to 5

Uperoleia laevigata[1]

Smooth Toadlet

- Warty appearance with an orange patch behind & in front of each thigh.
- Pale triangular patch between the eyes.
- Length = 25mm.
- Call = low pitched, drawn out “wwhhrrkkkkk”.

Census year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of sites where recorded	3	27	36	44	28	52	31	47	52	34
% of total sites surveyed	10	23	26	31	17	33	23	29	28	29
Median # of individuals observed	1 to 5	1 to 5	1 to 5	5 to 20	1 to 5	1 to 5	1 to 5	1 to 5	5 to 20	1 to 5

Side codes with corresponding abundance

BAR050	1 to 5
BUR500	5 to 20
BUR700	5 to 20
CDD100	1 to 5
CDD200	5 to 20
CEQ100	1 to 5
CEQ200	5 to 20
CFR200	5 to 20
CMC100	5 to 20
CMC600	1 to 5
DGP001	1 to 5
FBM400	20 to 50
FMC040	1 to 5
FMC230	1 to 5
GUN700	1 to 5
JBD100	5 to 20
JBD200	1 to 5
LDM100	5 to 20
MFL002	1 to 5
MFL003	1 to 5
MFL005	5 to 20
MFL007	1 to 5
MFL011	5 to 20
MFL013	1 to 5
MFL017	1 to 5
MYR300	5 to 20
PIN100	1 to 5
QBN010	5 to 20
RCD001	1 to 5
STP100	1 to 5
TRA100	1 to 5
UMD004	1 to 5
UMD005	1 to 5
WEE100	1 to 5

Limnodynastes peronii[1]

Brown Striped Frog

- Distinctive light and dark brown stripes on the dorsal surface.
- Slightly raised glandular stripe along the mouth and behind the eye.
- Length = 70mm.
- Call = single “tock” repeated.

Census year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of sites where recorded	3	8	8	19	14	33	10	27	23	12
% of total sites surveyed	10	7	6	13	8	21	7	17	12	10
Median # of individuals observed	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5	1 to 5

Side codes with corresponding abundance

ANU021	1 to 5
ANU023	1 to 5
CFR300	5 to 20
FGC009	1 to 5
FGW150	1 to 5
FMC040	5 to 20
FMW010	1 to 5
GUN100	5 to 20
GUN110	1 to 5
JER500	20 to 50
MOL600	1 to 5
TRA100	1 to 5

Neobatrachus sudelli[1]

Spotted Burrowing Frog

- Squat, short-legged frog with numerous wart-like bumps that give a sand-paper appearance.
- Broad pattern of greenish-brown & darker blotches on the back.
- Length = 50mm.
- Call = soft, rapidly repeated clucking sounds.

This species is the most terrestrial frog found in the region, spending most of the year sheltering in deep burrows in the soil. Individuals are usually only found active on the ground at night after periods of very heavy rainfall, when the ground is completely soaked.
No spotted burrowing frogs were detected in October 2011 due to the absolute lack of periods of very heavy rainfall and completely soaked ground during the Census period.

Census year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of sites where recorded	0	0	2	2	0	0	1	4	4	0
% of total sites surveyed	0	0	1	1	0	0	1	2	2	0
Median # of individuals observed	/	/	1 to 5	1 to 5	/	/	1 to 5	1 to 5	1 to 5	/

Litoria aurea[1]

Green and Golden Bell Frog

- Large green or green and brown/gold in colour.
- Smooth back and bright blue or purple on hind side of thighs.
- Length = 80 - 120mm.
- Call = soft, distinctive drawn out deep 'wrrraaaaagh wrrraaaaagh wrrrkk, wrrkkk wrrk'.

During the 2011 Census period only basking individuals were observed but no calls heard. This result is consistent with 2010. Since the commencement of the annual FROGWATCH census this species has only been found twice, in 2006 and 2009 when calling males were recorded at one site each. The locations of these sites are not publicly available.

[1] Species information taken from Lintermans, M. and Osborne, W. (2002). Wet & Wild: A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Canberra: Environment ACT.

References

Beebee, T. J. C. and Griffiths, R. A. (2005). The amphibian decline crisis: A watershed for conservation biology? *Biological Conservation* **125**, 271-285.
Boyer, R. and Grue, C. E. (1995). The need for water quality criteria for frogs. *Environmental Health Perspectives* **103**, 352-357.
Bureau of Meteorology (BOM) 2011. ACT monthly climate summary archive. www.bom.gov.au
DeGarady, C. J. and Halbrook, R. S. (2006). Using anurans as bioindicators of PCB contaminated streams. *Journal of Herpetology* **40**, 127-130.
Duellman, W. E. and Trueb, L. (1994). Biology of Amphibians. New York: McGraw-Hill.
Jansen, A. and Healey, M. (2003). Frog communities and wetland condition: Relationships with grazing by domestic livestock along an Australian floodplain river. *Biological Conservation* **109**, 207-219.
Kavanagh, R. P. and Stanton, M. A. (2005). Vertebrate species assemblages and species sensitivity to logging in the forests of north-eastern New South Wales. *Forest Ecology and Management* **209**, 309-341.
Lauck, B. (2006). Fluctuating asymmetry of the frog *Crinia signifera* in response to logging. *Wildlife Research* **33**, 313-320.
Lintermans, M. and Osborne, W. (2002). Wet & Wild: A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Canberra: Environment ACT.
Lofvenhaft, K., Runborg, S. and Sjogren-Gulve, P. (2004). Biotope patterns and amphibian distribution as assessment tools in urban landscape planning. *Landscape and Urban Planning* **68**, 403-427.
Price, S. J., Howe, R. W., Hanowski, J. M., Regal, R. R., Niemi, G. J. and Smith, C. R. (2007). Are anurans of Great Lakes coastal wetlands reliable indicators of ecological condition? *Journal of Great Lakes Research* **33**, 211-223.
Tyler, M. J. (1994). Australian Frogs: A Natural History. Chatswood: Reed Books.
Weygoldt, P. (1989). Changes in the composition of mountain stream frog communities in the Atlantic Mountains of Brazil - frogs as indicators of environmental deteriorations. *Studies on Neotropical Fauna and Environment* **24**, 249-255.

Appendix 1

FROGWATCH Volunteers 2011

Rowan Alden
Dave Alden
Bryony Alden
Carla Alexandra
Jim Arnold

Barbara Bennet
Claudia Benham
Maree Blume
John Bissett
Karen Butler
Kath Boyd
Louisa Barnsley
Maryka Booth

Karen Cording
Damon Cucack
Ishbel Cullen
Margaret Clark
Jenny Clarke
Sally Crossman

Cecily Dignan
Di Davidson - Gunghalin College
Bruce Davies
Monique Driver
Morgan Driver
Peter Duffy
Paul Doyle

Pam Fawke
Fred Fawke
Melissa Fellow

Susanna Grows
Kelli Gowland
Gungahlin College Students
Juliette Grimaldi

Sarah Hedberg
Sarah Hnatiuk
Roger Hnatiuk
Wendy Hodgman
Steve Hodgeman
Rob Hayes
Brendan Hawke
Anke Maria Hoefer
Catherine Hope
Fleur Horan
Gabrielle Ho
Ian Holcombe
Mark Hall

Lyn Jenkins
Oliver Johns

Maree Kerr
Deb Kellog
Denise Kay
Vera Kurz
Tanya King

Penny Lilley
Jo Lynch
Jon Lewis
Dennis Lassam
Martin Lind
Anna Lashko

Glenis Medlin
Paul Medlin
Jamie Mason
Anthony Mason
Brad Murray

Lynda Nixon
Mike Nixon

Shelley Owen

Sandra Parsons
Julie Piggott
Narelle Powers
Plant Protection 2 evening group

Julian Reid
Edwina Robinson
Sue Richard
Susan Roberston
Alexander Rodriguez
Bryony Retter
Elizabeth Retterz

Sands Waterwatch
Stephen Skinner
Roslyn Sexton
Robyn Singleton - Gunghalin College

Christine Trull - Gunghalin College
Peter Treyde
Nada Travica
James Trezise

Cath Williams
Don Williams
Susan Webb
Xenia Weber
Alan Welsh
Mary Welsh
Cameron Whitnall
Harry Whitnall
Alana Wilkes

Tim Yiu

Appendix 2

Site Location Details – October 2011

Note: sites listed in red are Key FROGWATCH Sites (see page 5 for more detail).

Site code	Site name	State	Observers	Monitoring occasions	Latitude	Longitude
ANU012	ANU. Dickson Rd Carpark - dam	ACT	G. Ho, S. Hedberg, T. Yiu, A. Rodriguez	2	-35.2805	149.1117
ANU018	ANU. Sullivans Creek, downstream of Burgmann College.	ACT	T. Yiu, C. Alexandra, X. Weber, I.Cullen	2	-35.2819	149.1121
ANU019	ANU. Sullivans Creek near corner of Daley Rd and Ward Rd	ACT	T. Yiu, C. Alexandra, X. Weber, I.Cullen	2	-35.2797	149.1151
ANU020	ANU. Sullivans Creek Stepping Stones, Adjacent to Building 46.	ACT	T. Yiu, C. Alexandra, X. Weber, I.Cullen	2	-35.2796	149.1169
ANU021	ANU. Sullivans Creek, adjacent to building 45.	ACT	C. Alexandra, C. Benham, X. Weber, I. Cullen, G. Ho, S. Hedberg	3	-35.2779	149.1191
ANU022	ANU. Sullivans Creek, upstream of University Ave bridge	ACT	C. Alexandra, C. Benham, X. Weber, I. Cullen	2	-35.2786	149.1202
ANU023	ANU. Sullivans Creek, downstream of Barry Drive GPT	ACT	C. Alexandra, C. Benham, X. Weber, I. Cullen, G. Ho, S. Hedberg	3	-35.2754	149.1235
ANU041	ANU. Constructed swale, adjacent to Phenomics building	ACT	G. Ho, S. Hedberg, T. Yiu, A. Rodriguez	2	-35.2836	149.1156
ANU042	ANU. Constructed pond, adjacent to Dickson Rd Carpark, Acton	ACT	T. Yiu, A. Rodriguez, G. Ho, S. Hedberg	3	-35.2796	149.1122
ARA017	Backyard Pond, Araba St, Aranda	ACT	S. Robertson	1	-35.2643	149.0836
ARA100	Aranda Paddock Dam, adjacent to William Hovell Drive.	ACT	J. Arnold	1	-35.2764	149.0779
ARA200	Large Dam North of ARA100	ACT	J. Arnold	1	-35.2730	149.0775
ARA300	Carne Creek, Aranda	ACT	M. Clark	1	-35.2747	149.0863
BAR050	Lower Dam, west arm Barracks Creek Queanbeyan	NSW	S. Skinner	2	-35.3802	149.2323
BMT100	Black Mountain Dam, near pass under Caswell Drive.	ACT	R. Hnatiuk, S. Hnatiuk, J. Gribaldi,	3	-35.2726	149.0890
BRU200	Bruce CIT water storage pond	ACT	B. Davies, Plant Protection 2 evening group	1	-35.2484	149.0956
BSW001	Banksia Street Wetland - O' Connor	ACT	T. King, P. Doyle, S. Grows	2	-35.2576	149.1180
BUR500	NGARIGO Dam	NSW	K. Boyd, P. Duffy	1	-35.5646	149.2089
BUR600	Burra Creek	NSW	K. Boyd, P. Duffy	1	-35.5558	149.2229
BUR700	259 BADGERY ROAD DAM	NSW	R. Sexton	3	-35.5817	149.2167
CAV100	Caves Quarry Dam, Pierce's Creek Forest	ACT	R. Hnatiuk, S. Hnatiuk, J. Gribaldi,	1	-35.3447	148.9420
CDD100	Bottom dam of Cecily Dignan Farm Dams	ACT	C.Dignan	2	-35.5808	149.2160
CDD200	Top dam of Cecily Dignan Farm Dams	NSW	C.Dignan	2	-35.5813	149.2097
CEQ100	Canberra Equestrian Park, Pond 1, Chapman.	ACT	A., M. Welsh	3	-35.3563	149.0150
CEQ200	Canberra Equestrian Park, Pond 2, Chapman.	ACT	A., M. Welsh	3	-35.3577	149.0188
CFR200	Hodgman Property, large dam	NSW	S., W. Hodgman	2	-35.5487	149.4420
CFR300	Molonglo River, just off Captains Flat Rd	NSW	S., W. Hodgman	2	-35.5401	149.4463

Site code	Site name	State	Observers	Monitoring occasions	Latitude	Longitude
CHC300	Calvary Hospital Ponds	ACT	A. M. Hoefer	1	-35.2537	149.0869
CMC100	Cooleman Ridge, Old Dam	ACT	C. Whitnall, H. Whitnall	2	-35.3570	149.0263
CMC600	Mount Neighbour Horse Paddock Dam	ACT	C. Whitnall, H. Whitnall, A. M. Hoefer, D. Cusack	3	-35.3813	149.0414
CMC700	Vikings BMX Park, Kambah	ACT	C. Whitnall, H. Whitnall	2	-35.3712	149.0549
COT100	Cotter Camp Ground	ACT	M. Blume, F. Horan	1	-35.3259	148.9486
CRA300	Wells Station and Gungahlin Drive Intersection, Crace	ACT	J. Piggott, N. Powers	2	-35.2085	149.1308
CTT100	Lower Tuggeranong Creek	ACT	M. Lind, B. Murray	3	-35.4072	149.0601
CTT300	Upper Tuggeranong Creek, Theodore	ACT	V. Kurz	1	-35.4405	149.1261
DGP001	Dunlop Grasslands Dam	ACT	A. Wilkes, R. Hayes, A. M. Hoefer, D. Cusack	3	-35.1850	149.0332
DIW100	Dickson Wetland, Hawdon Street	ACT	E. Robinson, J. Lynch, J. Reid	1	-35.2508	149.1479
FAD300	Waniassa Hills Dam	ACT	A. M. Hoefer, D. Cusack, K. Cording	3	-35.3942	149.1098
FBM100	Glenloch interchange dam	ACT	J. Arnold	1	-35.2833	149.0871
FBM400	Black Mountain Dam 4	ACT	P. Doyle	2	-35.2612	149.0982
FER100	Fernhill Technology Park pond, Bruce	ACT	J. Arnold	1	-35.2397	149.0908
FER200	Fernleigh Park at Jerrabomberra Creek Bridge	ACT	B. Davies	1	-35.4390	149.1943
FGC009	Jarramlee Pond (Dunlop Pond 1)	ACT	D. Lassam, P. Fawke, F. Fawke	4	-35.2031	149.0140
FGC030	Gooromon Ponds Creek, Dunlop	ACT	D. Lassam, P. Fawke, F. Fawke	6	-35.1988	149.0083
FGC040	Diddums Close beach, Lake Ginninderra	ACT	C. Hope	3	-35.2246	149.0689
FGC090	Ginninderra Creek, Macgregor	ACT	S. Parsons, A. Wilkes, R. Hayes	2	-35.2144	149.0141
FGC091	Ginninderra Creek, at Macgregor, via Crago Place	ACT	D. Lassam, L. Jenkins, J. Mason, A. Mason	3	-35.2125	149.0154
FGD005	John Knight Park Pond, Belconnen	ACT	J. Arnold	1	-35.2370	149.0749
FGD020	Oconnor Ridge Dam	ACT	M. Hall, M. Fellows, M. Driver	5	-35.2456	149.1123
FGD040	Aranda Bushland Dam	ACT	P. Lilley, S. Roberston, S. Webb	2	-35.2772	149.0823
FGG010	Giralang Pond, Giralang	ACT	D. Kay	4	-35.2156	149.0883
FGW150	Western Boardwalk Bog, Umbagong District Park, Latham	ACT	A. Mason, J. Mason	1	-35.2144	149.0265
FMC040	Buttles Creek, Queanbeyan aka BUT095	NSW	S. Skinner	2	-35.3486	149.2412
FMC200	Mt Majura Dam, bottom, via McKenzie St.	ACT	L. Barnsley	1	-35.2510	149.1745
FMC210	Mt Majura Nature Reserve, top dam, via McKenzie St	ACT	O. Johns	1	-35.2506	149.1769
FMC220	Mt Majura Dam, lower, via Jukes St	ACT	O. Johns, M. Fellows, M. Driver	4	-35.2412	149.1688
FMC230	Mt Majura dam at saddle - Doogie Dam	ACT	O. Johns	1	-35.2632	149.1710
FMW010	David St Wetland, Oconnor	ACT	P. Doyle	1	-35.2633	149.1239
GIN024	Ginninderra Creek at Umbagong Stepping Stones, Latham	ACT	A. Mason, J. Mason	1	-35.2158	149.0284
GUN100	Gungahlin Scout Hall Dam	ACT	Gungahlin College Students, Teachers (C. Trull, R. Singleton, D. Davidson), E. Robinson	1	-35.1861	149.1238

Site code	Site name	State	Observers	Monitoring occasions	Latitude	Longitude
GUN110	Gungahlin Scout Hall Dam EAST,	ACT	Gungahlin College Students, Teachers (C. Trull, R. Singleton, D. Davidson), E. Robinson	1	-35.1862	149.1239
GUN700	Denoon Street Drain	ACT	A. Lashko, K. Gowl,	1	-35.1647	149.1427
HAL001	Halls Creek Showground Bridge	ACT	G.Medlin, P. Medlin	1	-35.1715	149.0739
HAL002	Halls Creek, Pony Club, Hall	ACT	G.Medlin, P. Medlin	1	-35.1713	149.0748
HAR001	Harrison pond	ACT	S. Crossman	4	-35.1940	149.1568
ICH001	Illoura Paddock Dam	ACT	R. Alden, B. Alden, D. Alden	1	-35.3229	149.0665
ICH002	Illoura Paddock Creek Bridge	ACT	R. Alden, B. Alden, D. Alden	1	-35.3278	149.0662
ICH003	Illoura Creek below bridge	ACT	R. Alden, B. Alden, D. Alden	1	-35.3267	149.0675
JBD100	John Bisset Property Farm Dam No1	NSW	J. Bissett	3	-35.3980	149.3802
JBD200	John Bisset Property Farm Dam No2	NSW	J. Bissett	2	-35.3986	149.3775
JER100	Jerrabomberra Creek at Barrett's	NSW	S. Richard, S. Owen, S. Richard, M. Booth, B. Bennet	3	-35.5151	149.1715
JER500	Jerrabomberra Wetlands. First bird hide from Dairy Rd Carpark	ACT	B. Retter, E. Retterz, B. Hawke	3	-35.3160	149.1605
KIP001	Kippax Creek, Holt	ACT	D. Lassam, L. Jenkins, J. Mason, A. Mason	2	-35.2177	149.0184
LDM100	Lookout Dam, Holt	ACT	M. Fellows, M. Driver, L. Jenkins, A.M. Hoefer	3	-35.2440	148.9802
MFL001	Mulligans Flat Site 1	ACT	A. Lashko, K. Gowl,	1	-35.1673	149.1548
MFL002	Mulligans Flat Site 2	ACT	A.M. Hoefer, D. Cusack, A. Lashko, K. Gowl,	3	-35.1674	149.1562
MFL003	Mulligans Flat Site 3	ACT	A.M. Hoefer, D. Cusack, K. Gowl,, A. Lashko	2	-35.1661	149.1588
MFL004	Mulligans Flat Site 4	ACT	A.M. Hoefer, D. Cusack	1	-35.1651	149.1563
MFL005	Mulligans Flat Site 5	ACT	A.M. Hoefer, D. Cusack,, A. Lashko, K. Gowl,	4	-35.1638	149.1578
MFL007	Mulligans Flat Site 7	ACT	A. Lashko, K. Gowl,	1	-35.1636	149.1638
MFL011	Mulligans Flat Site 11	ACT	A.M. Hoefer, D. Cusack	1	-35.1793	149.1584
MFL013	Mulligans Flat Site 13	ACT	A.M. Hoefer, D. Cusack,	2	-35.1753	149.1664
MFL017	Mulligans Flat Site 17	ACT	A.M. Hoefer, D. Cusack, L. Jenkins	2	-35.1631	149.1751
MIT100	Gungahlin Cemetary, Mitchell	ACT	J. Piggott, N. Powers	2	-35.2130	149.1314
MND100	Dam on Nixon Property	NSW	M. Nixon, M. Nixon, L. Nixon	3	-35.5786	149.2312
MOL600	Creek near Tannery Beard	NSW	S. Skinner	1	-35.3424	149.1992
MOL602	Beard Creek 1	ACT	S. Skinner	1	-35.3419	149.2070
MUR100	Top dam on Lewis property, 'Gang Gang", Murrumbateman	NSW	J. Lewis	1	-34.9751	149.2018
MUR200	Chain of ponds on Lewis property "Gang Gang', Murrumbateman	NSW	J. Lewis	1	-34.9750	149.2073
MUR250	Lake Kevin	NSW	J. Lewis	1	-34.9751	149.2051
MYA050	Yarralumla Creek	ACT	A.M. Hoefer, K. Cording, D. Cusack, J. Trezise	4	-35.3074	149.0720
MYR100	Myrtle Rise, Mcauliffe Lane, Nanima Rd, Hall	NSW	R. Hnatiuk, S. Hnatiuk	1	-35.0523	149.0808
MYR300	Top dam at Myrtle Rise, Hall	NSW	R. Hnatiuk, S. Hnatiuk	1	-35.0564	149.0804
NAD011	National Arboretum Dam	ACT	R. Hnatiuk	1	-35.2911	149.0734

Site code	Site name	State	Observers	Monitoring occasions	Latitude	Longitude
NAD034	National Arboretum Dam near Cork oak Lot 34	ACT	R. Hnatiuk	1	-35.2840	149.0814
NAS100	Southern Tablelands Environmental Park	ACT	R. Hnatiuk	1	-35.2846	149.0661
ORA001	Orana School Drainage Gully	ACT	A.M. Hoefer	1	-35.3281	149.0583
ORA002	Orana School Dam	ACT	A.M. Hoefer	1	-35.3256	149.0589
ORA003	Orana Kindergarten Carpark Pond/depression	ACT	A.M. Hoefer	1	-35.3262	149.0608
PCF001	Dam near Pierces Creek	ACT	R. Hnatiuk, S. Hnatiuk, J. Grimaldi	1	-35.3402	148.9160
PIN100	Pinnacle Dam, Hawker	ACT	J. Arnold, A. Wilkes, R. Hayes	3	-35.2608	149.0433
PVB100	Billabong	NSW	D. Williams, C. Williams	3	-35.3758	149.2953
QBN010	33 Lonergan Drive, Dodsworth	NSW	J. Clarke	5	-35.3724	149.2464
QBN200	Queanbeyan River adj Dane St	NSW	S. Skinner	2	-35.3689	149.2373
QBN450	Queanbeyan River at Doeberl Reserve	NSW	S. Skinner	3	-35.3756	149.2511
RCD001	Rose Cottage horse paddock 8, Dam	ACT	A.M. Hoefer, D. Cusack, K. Cording	3	-35.3972	149.1331
STP100	Straithnairn Gallery Pond1	ACT	A.M. Hoefer	1	-35.2317	148.9947
TAY500	Mt Taylor Drainage Line adj Manheim	ACT	M. Kerr	1	-35.3793	149.0767
TRA100	Travica property, Gundaroo. Lower Dam	NSW	N. Travica	5	-35.0740	149.3076
UMD004	Tharwa Sandwash, Tharwa	ACT	D. Kellock	3	-35.5289	149.0785
UMD005	Point Hut Crossing, Gordon	ACT	D. Kellock	3	-35.4515	149.0657
UMD007	Casuarina Sands, Cotter	ACT	Sands Waterwatch	1	-35.3189	148.9605
WEE002	Weetalabah - private property site 2	NSW	K. Butler, P. Treyde	1	-35.3419	149.2771
WEE004	Weetalabah - private property site 4	NSW	K. Butler, P. Treyde	2	-35.3395	149.2756
WEE100	Weemalla, Fairview Rd, Wallaroo	NSW	S. Hnatiuk, R. Hnatiuk, I. Holcombe	1	-35.1131	149.0860

Appendix 3

Monitoring Summary - Key sites in red

site code	Total # of species	*Crinia parinsignifera*	*Crinia signifera*	*Limnodynastes dumerilii*	*Limnodynastes peronii*	*Limnodynastes tasmaniensis*	*Litoria peroni*	*Litoria verreauxii*	*Neobatrachus sudelli*	*Uperoleia laevigata*	Monitoring occasions	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	Summary of results, 1.- 31. October 2011 Note: Abundance: 1-5 = 1, 6-20 = 2, 21-50 =3, 51-100 = 4, >100 = 5											**Monitoring history**									
ANU012	2		2			2					2						✓			✓	✓
ANU018	1		1								2				✓	✓	✓		✓	✓	✓
ANU019	0										2				✓	✓	✓		✓	✓	✓
ANU020	1					1					2				✓	✓	✓		✓	✓	✓
ANU021	2		1		1						3				✓	✓	✓		✓	✓	✓
ANU022	1	1									2				✓	✓	✓		✓	✓	✓
ANU023	2				1	1					3				✓	✓	✓		✓	✓	✓
ANU041	0										2				✓	✓	✓				✓
ANU042	1					1					3						✓				✓
ARA017	2	1	1								1						✓	✓	✓	✓	✓
ARA100	2	2					1				1				✓	✓	✓	✓	✓	✓	✓
ARA200	2	2				1					1								✓	✓	✓
ARA300	0										1		✓	✓					✓	✓	✓
BAR050	5	2	3			2		1		1	2									✓	✓
BMT100	1	1									3					✓				✓	✓
BRU200	1					1					1									✓	✓
BSW001	2		1			1					2									✓	✓
BUR500	4	3	2			1				2	1										✓
BUR600	1		1								1										✓
BUR700	4	3	3			2				2	3										✓
CAV100	4		2	1		1	1				1						✓	✓	✓	✓	✓
CDD100	4	3	2			1				1	2										✓
CDD200	6	2	1			1	1	1		2	2										✓
CEQ100	3		1			2				1	3			✓	✓	✓	✓	✓	✓	✓	✓
CEQ200	5	3	2			3	2			2	3			✓	✓	✓	✓	✓	✓	✓	✓
CFR200	6	4	2	1		2	2			2	2				✓	✓	✓	✓	✓	✓	✓
CFR300	4		3	2	2	2					2						✓	✓	✓	✓	✓
CHC300	2		2			2					1							✓			✓
CMC100	4	2				2	1			2	2		✓	✓	✓	✓	✓		✓	✓	✓
CMC600	5	3	3			2	1			1	3		✓	✓	✓	✓	✓	✓	✓		✓
CMC700	2	3				3					2			✓	✓	✓		✓	✓	✓	✓

Summary of results, 1.- 31. October 2011

Note: Abundance: 1-5 = 1, 6-20 = 2, 21-50 =3, 51-100 = 4, >100 = 5

Monitoring history

site code	Total # of species	*Crinia parinsignifera*	*Crinia signifera*	*Limnodynastes dumerilii*	*Limnodynastes peronii*	*Limnodynastes tasmaniensis*	*Litoria peroni*	*Litoria verreauxii*	*Neobatrachus sudelli*	*Uperoleia laevigata*	Monitoring occasions	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
COT100	0										1			✓			✓	✓			✓
CRA300	4	3	1			2		1			2			✓	✓						✓
CTT100	1					1					3										✓
CTT300	4		3	1		1		1			1		✓	✓	✓			✓	✓	✓	✓
DGP001	6	3	2			3	2	2		1	3		✓	✓	✓	✓	✓	✓	✓	✓	✓
DIW100	3	1	1			2					1										✓
FAD300	3	1	1			2					3		✓	✓	✓	✓	✓		✓	✓	✓
FBM100	1	1									1		✓	✓	✓	✓	✓	✓	✓	✓	✓
FBM400	5	4	2			2	1			3	2								✓		✓
FER100	1		1								1			✓				✓	✓	✓	✓
FER200	4	1	2			1		1			1					✓	✓	✓	✓	✓	✓
FGC009	5	1	2	1	1			1			4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FGC030	5	2	2	1		2		2			6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FGC040	2		1	1							3		✓	✓				✓	✓	✓	✓
FGC090	4		1	1		1		2			2		✓		✓			✓		✓	✓
FGC091	4		2	1		2		1			3					✓	✓	✓	✓	✓	✓
FGD005	0										1	✓								✓	✓
FGD020	3	1	1			1					5		✓				✓	✓	✓	✓	✓
FGD040	4	3	3			1	1				2		✓		✓	✓	✓	✓	✓	✓	✓
FGG010	4	2	1	2				1			4	✓	✓		✓			✓	✓	✓	✓
FGW150	1				1						1						✓				✓
FMC040	7	1	2	2	2	1	1			1	2	✓				✓	✓	✓	✓	✓	✓
FMC200	1							1			1		✓	✓	✓	✓	✓	✓	✓	✓	✓
FMC210	0										1		✓	✓	✓	✓	✓	✓	✓	✓	✓
FMC220	1	1									4		✓	✓	✓	✓	✓	✓	✓	✓	✓
FMC230	4	1	1			1				1	1					✓	✓				✓
FMW010	2				1	2					1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GIN024	1			1							1					✓	✓		✓		✓
GUN100	5	1	1	1	2	2					1								✓		✓
GUN110	4	2	1		1	1					1										✓
GUN700	6	3	1			1	1	1		1	1										✓
HAL001	2					1		1			1		✓	✓	✓	✓	✓	✓	✓	✓	✓
HAL002	3	1		1		1					1			✓					✓	✓	✓
HAR001	3	3				3		1			4									✓	✓
ICH001	3	1		1		1					1				✓		✓			✓	✓
ICH002	0										1				✓		✓			✓	✓
ICH003	0										1									✓	✓

site code	Total # of species	*Crinia parinsignifera*	*Crinia signifera*	*Limnodynastes dumerilii*	*Limnodynastes peronii*	*Limnodynastes tasmaniensis*	*Litoria peroni*	*Litoria verreauxii*	*Neobatrachus sudelli*	*Uperoleia laevigata*	Monitoring occasions	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	Summary of results, 1.- 31. October 2011 Note: Abundance: 1-5 = 1, 6-20 = 2, 21-50 =3, 51-100 = 4, >100 = 5											**Monitoring history**									
JBD100	7	2	3	1		2	1	1		2	3										✓
JBD200	5	2	3			2		1		1	2										✓
JER100	5	2	2	1		2		1			3		✓	✓	✓	✓	✓	✓	✓	✓	✓
JER500	4	1	3		3	2					3		✓	✓	✓	✓	✓	✓	✓	✓	✓
KIP001	4		2	2		1		1			2			✓		✓	✓	✓	✓	✓	✓
LDM100	4	2				2	2			2	3		✓	✓		✓	✓	✓	✓		✓
MFL001	5	4	1			1	1	1			1		✓	✓	✓	✓	✓	✓	✓	✓	✓
MFL002	6	2	1			2	2	1		1	3		✓	✓	✓	✓	✓	✓	✓	✓	✓
MFL003	6	3	1			2	2	1		1	2		✓	✓	✓	✓	✓	✓	✓		✓
MFL004	4	2	2			2		1			1		✓	✓	✓	✓	✓	✓	✓	✓	✓
MFL005	6	3	2			1	1	2		2	4		✓	✓	✓	✓	✓	✓	✓		✓
MFL007	3	2						1		1	1		✓	✓	✓	✓	✓	✓	✓	✓	✓
MFL011	5	4				4	2	1		2	1			✓	✓	✓	✓	✓	✓	✓	✓
MFL013	5	3	2			4	2			1	2			✓	✓	✓	✓	✓	✓	✓	✓
MFL017	6	3	2			1	2	1		1	2			✓	✓	✓	✓	✓			✓
MIT100	2	2	1								2			✓	✓						✓
MND100	4	2	2	1		2					3										✓
MOL600	3	1			1			1			1								✓	✓	✓
MOL602	3	3	2					1			1										✓
MUR100	5	2	1			1	1	1			1				✓					✓	✓
MUR200	1					1					1				✓					✓	✓
MUR250	4	1	1			1	1				1									✓	✓
MYA050	4	2	1	1		2					4		✓	✓		✓	✓	✓	✓	✓	✓
MYR100	3	2	1			1					1					✓	✓		✓		✓
MYR300	5	3				1	2	1		2	1								✓		✓
NAD011	2	2		1							1									✓	✓
NAD034	2	2				1					1									✓	✓
NAS100	1					1					1									✓	✓
ORA001	0										1								✓	✓	✓
ORA002	5	1	1	1		1	1				1									✓	✓
ORA003	0										1									✓	✓
PCF001	4	1	2	1		2					1								✓	✓	✓
PIN100	4	2	2			2				1	3			✓	✓	✓	✓	✓		✓	✓
PVB100	2	5				4					3										✓
QBN010	6	2	2	1		2	2			2	5							✓	✓		✓
QBN200	3		3	1				1			2			✓	✓	✓	✓	✓	✓	✓	✓
QBN450	3		3	1				2			3									✓	✓

site code	Total # of species	*Crinia parinsignifera*	*Crinia signifera*	*Limnodynastes dumerilii*	*Limnodynastes peronii*	*Limnodynastes tasmaniensis*	*Litoria peroni*	*Litoria verreauxii*	*Neobatrachus sudelli*	*Uperoleia laevigata*	Monitoring occasions	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	Summary of results, 1.- 31. October 2011 Note: Abundance: 1-5 = 1, 6-20 = 2, 21-50 =3, 51-100 = 4, >100 = 5											**Monitoring history**									
RCD001	5	2	1			1	1			1	3		✓		✓	✓	✓	✓	✓	✓	✓
STP100	6	3	1			2	1	1		1	1										✓
TAY500	1		2								1									✓	✓
TRA100	5	1	1		1		1			1	5					✓	✓	✓	✓	✓	✓
UMD004	4	1	2	1						1	3									✓	✓
UMD005	4	2	2				1			1	3									✓	✓
UMD007	1		2								1									✓	✓
WEE002	3	1	2					1			1									✓	✓
WEE004	5	2	2			2	1	2			2									✓	✓
WEE100	5	3				1	1	1		1	1					✓	✓	✓	✓	✓	✓