

Husbandry Guidelines
For



Eastern blue tongue lizard

Tiliqua scincoides

(Reptilia: Scincidae)

Compiler: Tarni Atcheson
Date of Preparation: 24th of February 2009
Western Sydney Institute of TAFE, Richmond
Course Name and Number: RUV 30204
Lecturer: Graeme Phipps, Jackie Salkeld, Brad Walker

OCCUPATIONAL HEALTH AND SAFETY RISKS

- **Some OHS risks hazards and issues include:**

1. Bites
2. Scratches
3. Zoonosies
3. Feeding
4. Enclosure heating lamps
5. Pests brought in by plants
6. Overheating/humidity

- **How to reduce these risks:**

1. Bites scratches-use appropriate ppe when handling these animals and know the warning signs of the animal
2. zoonosies- wear appropriate ppe when handling the animal and keep it checked for any diseases or problems regularly.
3. When feeding meal worms be careful not to feed it more than it can handle, hungry meal worms can injure and even kill a small lizard.
If you intend to feed the lizard snails you must ensure that snail baits or poisons are not in use at the site of collection, furthermore check that poisonous plants such as oleander are not present as snails feed on these.
When feeding the lizard pink mice make sure you don't leave them unsupervised in the blue tongue enclosure over night as the mice will feed on lethargic lizards overnight and also usually bit as a part of their defence.they are therefore much better offered dead to blue tongues.
4. make sure heating lamps are placed so that the lizard can escape from the hot spot when it needs to.
5. make sure you thoroughly check all plants for ant populations.
6. make sure that you have the right amount of water and plants so that you don't increase the humidity levels and over heat the animal.

TABLE OF CONTENTS

1	INTRODUCTION.....	6
2	TAXONOMY	8
2.1	NOMENCLATURE.....	8
2.2	SUBSPECIES.....	8
2.3	RECENT SYNONYMS.....	8
2.4	OTHER COMMON NAMES	8
3	NATURAL HISTORY	9
3.1	MORPHOMETRICS.....	ERROR! BOOKMARK NOT DEFINED.
3.1.1	<i>Mass And Basic Body Measurements</i>	9
3.1.2	<i>Sexual Dimorphism</i>	9
3.1.3	<i>Distinguishing Features</i>	10
3.2	DISTRIBUTION AND HABITAT	10
3.3	CONSERVATION STATUS	11
3.4	LONGEVITY	11
3.4.1	<i>In the Wild</i>	11
3.4.2	<i>In Captivity</i>	11
3.4.3	<i>Techniques Used to Determine Age in Adults</i>	11
4	HOUSING REQUIREMENTS.....	12
4.1	EXHIBIT/ENCLOSURE DESIGN	13
4.2	HOLDING AREA DESIGN.....	13
4.3	SPATIAL REQUIREMENTS	13
4.4	POSITION OF ENCLOSURES	14
4.5	WEATHER PROTECTION.....	14
4.6	TEMPERATURE REQUIREMENTS	14
4.7	SUBSTRATE	15
4.8	NESTBOXES AND/OR BEDDING MATERIAL	16
4.9	ENCLOSURE FURNISHINGS	16
5	GENERAL HUSBANDRY.....	17
5.1	HYGIENE AND CLEANING	17
5.2	RECORD KEEPING	18
5.3	METHODS OF IDENTIFICATION	18
5.4	ROUTINE DATA COLLECTION	18
6	FEEDING REQUIREMENTS.....	19
6.1	DIET IN THE WILD	19
6.2	CAPTIVE DIET	20
6.3	SUPPLEMENTS	21
6.4	PRESENTATION OF FOOD	21
7	HANDLING AND TRANSPORT	22
7.1	TIMING OF CAPTURE AND HANDLING	23
7.2	CATCHING BAGS	23
7.3	CAPTURE AND RESTRAINT TECHNIQUES	23
7.4	WEIGHING AND EXAMINATION	23
7.5	RELEASE	24
7.6	TRANSPORT REQUIREMENTS.....	24
7.6.1	<i>Box Design</i>	24
7.6.2	<i>Furnishings</i>	25

7.6.3	<i>Water and Food</i>	25
7.6.4	<i>Animals per Box</i>	25
7.6.5	<i>Timing of Transportation</i>	26
7.6.6	<i>Release from Box</i>	26
8	HEALTH REQUIREMENTS	26
8.1	DAILY HEALTH CHECKS	26
8.2	DETAILED PHYSICAL EXAMINATION.....	27
8.2.1	<i>Chemical Restraint</i>	27
8.2.2	<i>Physical Examination</i>	27
8.3	ROUTINE TREATMENTS	27
8.4	KNOWN HEALTH PROBLEMS	28
8.5	QUARANTINE REQUIREMENTS.....	31
9	BEHAVIOUR	32
9.1	Activity.....	30
9.2	SOCIAL BEHAVIOR	31
9.3	reproductive behavior.....	31
9.4	bathing.....	31
9.5	behavioural problems.....	31
9.6	SIGNS OF STRESS.....	31
9.7	BEHAVIOURAL ENRICHMENT ERROR! BOOKMARK NOT DEFINED.	
9.8	INTRODUCTIONS AND REMOVALS	33
9.9	INTRASPECIFIC COMPATIBILITY	ERROR! BOOKMARK NOT DEFINED.
9.10	INTERSPECIFIC COMPATIBILITY.....	33
9.11	SUITABILITY TO CAPTIVITY	ERROR! BOOKMARK NOT DEFINED.
10	BREEDING	34
10.1	MATING SYSTEM.....	34
10.2	EASE OF BREEDING	34
10.3	REPRODUCTIVE CONDITION	35
10.3.1	<i>Females</i>	35
10.3.2	<i>Males</i>	35
10.4	TECHNIQUES USED TO CONTROL BREEDING	35
10.5	OCCURRENCE OF HYBRIDS.....	36
10.6	TIMING OF BREEDING.....	36
10.7	AGE AT FIRST BREEDING AND LAST BREEDING	36
10.8	ABILITY TO BREED EVERY YEAR.....	36
10.9	ABILITY TO BREED MORE THAN ONCE PER YEAR	36
10.10	NESTING, HOLLOW OR OTHER REQUIREMENTS.....	37
10.11	BREEDING DIET.....	37
10.12	INCUBATION PERIOD	37
10.13	CLUTCH SIZE.....	37
10.14	AGE AT WEANING	37
10.15	AGE OF REMOVAL FROM PARENTS.....	38
10.16	GROWTH AND DEVELOPMENT.....	38
11	ARTIFICIAL REARING	38
11.1	INCUBATOR TYPE.....	39
11.2	INCUBATION TEMPERATURE AND HUMIDITY	39
11.3	DESIRED % EGG MASS LOSS.....	40
11.4	HATCHING TEMPERATURE AND HUMIDITY	40
11.5	NORMAL PIP TO HATCH INTERVAL	40

11.6	DIET AND FEEDING ROUTINE	40
11.7	SPECIFIC REQUIREMENTS	41
11.8	DATA RECORDING.....	41
11.9	IDENTIFICATION METHODS	41
11.10	HYGIENE	42
11.11	BEHAVIOURAL CONSIDERATIONS	42
11.12	WEANING.....	42
12	ACKNOWLEDGEMENTS.....	43
13	REFERENCES.....	43
14	BIBLIOGRAPHY	45
15	GLOSSARY	50
16	APPENDIX.....	51

43 Introduction

The blue tongues are large terrestrial, diurnal, omnivorous, viviparous skink which means they live on the ground, are active by day, feed on both plants and animals and give birth to live young. Blue tongues belong to a lineage that dates back at least 15 million years and the eastern blue tongue have been long known to science. The eastern blue tongue was the first Australian reptile to be described. This was done by hunter in 1790 scincoides means skink like. Eastern blue tongues occur throughout eastern and northern Australia where they occupy a wide variety of habitats ranging from temperate lowland grasslands, dry sclerophyll forests, semi arid grasslands and woodlands to coastal heaths. They can total lengths of up to 600mm. eastern have the largest litter of up to 5- 24 live young born mid to late summer; eastern blue tongues exhibit wide variations in color and banding pattern however bands are always present ,though may sometimes be indistinct. Blue tongues are used to educate the public in reptile shows which allows the public to find out more about the species such as color,distribution,habitat,diet,what to do if you come across one especially a wild one and people are made more aware of the species in hope that they can help out by leaving them alone.

Fire-tailed Skink <i>Morethia ruficauda ruficauda</i>									
ALICE SPR	0.	0.	0.	0.	4	ACQUIRE (LOCAL PROVENANCE)	2007		
ASMP Reptile and Amphibian TAG; No Regional Program; Management Level 3									
Pygmy Blue-tongue <i>Tiliqua adelaidensis</i>									
ADELAIDE	2.	0.	0.	9.	9.	0	ACQUIRE		
IUCN Endangered; ESP E									
ASMP Reptile and Amphibian TAG; No Regional Program; Management Level 3									
TAG notes: Cooperate with field programs conducted by the Department of Environment, Aboriginal Affairs, South Australia.									
Centralian Blue-tongue <i>Tiliqua multifasciata</i>									
ALICE SPR	2.	2.	8	2.	4.	5	MAINTAIN (LOCAL PROVENANCE)		
COOMERA	0.	1.	3	0.	1.	3	MAINTAIN		
CURRUMBIN	1.	0.	5	1.	0.	5	MAINTAIN		
GOSFORD	0.	0.	4	0.	0.	4	MAINTAIN		
MELBOURNE	2.	3.	0	2.	3.	0	MAINTAIN		
MUS VICT	0.	0.	2	0.	0.	2	MAINTAIN		
PALMGROVE	0.	0.	4	2.	2.	0	MAINTAIN		
PERTH	2.	0.	0	2.	0.	0	MAINTAIN IN 2007		
RAVENSWD	0.	0.	5	0.	0.	5	MAINTAIN		
SUMMERTOW	0.	0.	2	0.	0.	2	MAINTAIN		
Totals	7.	8.	33	9.	10.	27			
ASMP Reptile and Amphibian TAG; No Regional Program; Management Level 3									
Blotched Blue-tongue <i>Tiliqua nigrolutea</i>									
GOSFORD	1.	1.	4	1.	1.	4	MAINTAIN		
HEALESVIL	1.	2.	5	1.	2.	5	MAINTAIN		
MELBOURNE	1.	2.	0	1.	2.	0	MAINTAIN (EDUCATION ONLY)		
MUS VICT	0.	0.	1	0.	0.	1	MAINTAIN		
PEARCEDAL	0.	0.	4	2.	2.	0	MAINTAIN		
SUMMERTOW	0.	0.	0	0.	0.	2	ACQUIRE FOR EDUCATION PROGRAMS IN 2007		
SYDNEY	0.	0.	1	0.	0.	0	DELETE BY ATTRITION		
SYDNEY AQ	0.	0.	0	0.	2.	0	ACQUIRE		
TROWUNIA	1.	3.	2	1.	3.	2	BREED, REHAB. EXCESS TO THE WILL		
WERRIBEE	0.	0.	4	0.	0.	4	MAINTAIN		
YARRALUML	0.	0.	1	0.	0.	1	MAINTAIN		
Totals	4.	8.	22	6.	12.	19			
ASMP Reptile and Amphibian TAG; No Regional Program; Management Level 3									
Western Blue-tongue <i>Tiliqua occipitalis</i>									
ADELAIDE	0.	0.	3	0.	0.	0	DELETE		
CURRUMBIN	0.	0.	0	1.	2.	0	ACQUIRE		
MUS VICT	0.	0.	1	0.	0.	1	MAINTAIN		
PALMGROVE	1.	0.	2	1.	2.	0	MAINTAIN		
PERTH	0.	0.	3	0.	0.	3	MAINTAIN IN 2007		
RAVENSWD	0.	0.	5	0.	0.	5	MAINTAIN		
Totals	1.	0.	14	2.	4.	9			
ASMP Reptile and Amphibian TAG; No Regional Program; Management Level 3									
Eastern Blue-tongue <i>Tiliqua scincoides</i>									
BALLARAT	0.	0.	4	0.	0.	4	MAINTAIN		
BEERWAH	2.	2.	16	2.	2.	16	MAINTAIN		
HELLINSEBU	0.	2.	10	0.	2.	10	MAINTAIN		
KALLANGUR	0.	0.	4	0.	0.	4	MAINTAIN		
MUS VICT	0.	0.	2	0.	0.	2	MAINTAIN		
NAPIER	4.	0.	1	4.	0.	1	MAINTAIN		
ROCKHAMPT	0.	2.	0	1.	3.	0	ACQUIRE		
SYDNEY AQ	0.	6.	0	0.	6.	0	MAINTAIN		
TIPPOINT	1.	4.	0	6.	6.	0	BREED TO REQUIREMENTS		
YARRALUML	1.	1.	10	1.	1.	10	MAINTAIN		
Totals	8.	17.	47	14.	20.	47			
ASMP Reptile and Amphibian TAG; No Regional Program; Management Level 3									
Eastern Blue-tongue <i>Tiliqua scincoides intermedia</i>									
MUS VICT	0.	0.	2	0.	0.	2	MAINTAIN		
PERTH	0.	1.	0	0.	1.	0	MAINTAIN IN 2007		
SYDNEY AQ	1.	3.	2	1.	1.	2	MAINTAIN		
WINNELLIE	3.	0.	0	2.	2.	0	DELETE EXCESS; COLLECT LOCALITY DATA		
Totals	4.	2.	4	3.	4.	4			
ASMP Reptile and Amphibian TAG; No Regional Program; Management Level 3									

4.4 ASMP Category

ASMP reptile and amphibian TAG, no regional program, management level 3 level 3 is annual census only and the census of current and planned holdings for the region id published in the body of the annual regional census and plan document
An authority may include a condition requiring the holder to participate
In the Australasian Species Management Program of the Australasian Regional Association of Zoological Parks and Aquaria.

4.4 IUCN Category

Iucn status for this species is stable

4.4 EA Category

N/A not applicable

4.4 NZ and PNG Categories and Legislation

N/A not applicable

4.4 Wild Population Management

The species is not currently threatened and is being managed as stable

4.4 Species Coordinator

N/A not applicable

4.4 Studbook Holder

N/A not applicable

N

Taxonomy

4.4 Nomenclature

Kingdom: Animalia

Phylum: Chordata

Class: Reptilia

Order: Squamata

Sub order: Sauria

Family: Scinidae

Genus: *Tiliqua*

Species: *T.scincoides*

4.4 Subspecies

Northern blue tongue skink

Merauke

Tanimbar

Indonesian

Kei Island

Shinglebak

4.4 Recent Synonyms

Trachydosaur

4.4 Other Common Names

Eastern blue tongue skink

Reference:

Eastern blue tongue lizard, 2010, Australian museum,
22.april.2010, australianmuseum.net.au

Zach,2010,genus information,zach,22,june,2010,www.bluetongueskinks.net

44 Natural History

The Eastern Blue Tongue was the first Australian reptile to be described. This was done by Hunter in 1790 scincoides means 'skink like'.

Eastern blue tongue lizards do not have well developed teeth but can bite very well, and have a habit of biting and not letting go.

If handled roughly the eastern blue tongue skink will drop its tail the stump will quickly heal and a shorter more stumpy tail will grow.

Reference:

Raferty.a, 2002, bearded dragon, ring press books, surrey

R.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragon, Barron's educational series, New York

4.4 Morph metrics

44.1 Mass and Basic Body Measurements

The blue eastern blue tongue skink grows to 40-45cm long

44.2 Sexual Dimorphism

Ways to tell if it's a male or female:

- *large bulky head
- *slimmer sides
- *husky throat
- *eye shape and color
- *thick tail base
- *squeezing the tail base
- *breeding marks on back
- *probing
- *x-ray or ultra sound

Traits to watch for in the male:

- Complete halt in movement—the male will likely freeze for up to 30 seconds or more, then bolt toward the female. We call this event the look of interest or the look of intent.
- Latching on—the male will bite onto the other animal and hold on.
- Movement—if the previous action was not an offensive attack, the male will begin moving the female around with his mouth. Up, down, left, and right, he will situate her, and re-situate her until he is ready to evert the hemipenes. This is the "mating movement".
- Rearing tail underneath—If and when the male begins to rear his tail underneath the other animal, this is a sure sign of being a male. This action pretty much seals the deal unless you have some insane confused skink.

- And finally, hemipenis eversion—you will see the male sex organs evert (sometimes surprisingly far) as he attempts to copulate. Your animal is now 100% a male.

Traits to watch for in the female:

- Oscillating tail—watch for an erratic, wagging, "snake-like" tail movement.
- Eventual elevation of the tail— this is the female preparing to "accept" the male's sexual advances to complete copulation.
- Not fighting back—if you are experimenting during breeding season (do so for best results), the female normally should not act immoderately defensive toward a male's sexual advances. A few nips in return is not uncommon during courtship.
- Teasing—although this doesn't always happen, a sexually excited female will sometimes walk by the male actually enticing him. This happens especially when the male is not showing much interest. She will walk by with somewhat of a jerky motion, tail flailing, and intently watch him the whole time. Not all females do this. Some run away, some fight back; it entirely depends on the male's actions, environment, temperature, etc.

44.3 Distinguishing Features

Eastern blue tongues are silvery grey with broad dark brown or blackish bands across the back and tail. The blotched blue tongue is dark chocolate brown to black with large pink, cream or yellow blotches on its back, and a tail banded with the same colors. The belly of blue tongues is usually pale with darker vegetations.

Reference:

Turner.G, 2001, keeping blue tongue lizards, Australian reptile keeper publications, Bendigo Victoria

4.4 Distribution and Habitat

Eastern blue tongues occur throughout Australia where they occupy a wide variety of habitats ranging from temperate lowland grasslands.dry sclerophyll forests, semi arid grasslands and woodland and coastal heaths.



References:

Turner.G, 2001, keeping blue tongue lizards, Australian reptile keeper publications, Bendigo Victoria

4.4 Conservation Status

Stable

References:

Turner.G, 2001, keeping blue tongue lizards, Australian reptile keeper publications, Bendigo Victoria

4.4 Longevity

44.1 In the Wild

Eastern blue tongue lizards can live for up to 30 years in the wild

References:

Turner.G, 2001, keeping blue tongue lizards, Australian reptile keeper publications, Bendigo Victoria

44.2 In Captivity

Eastern blue tongue lizards can live up to 20 + years or more in captivity

References:

Turner.G, 2001, keeping blue tongue lizards, Australian reptile keeper publications, Bendigo Victoria

44.3 Techniques Used to Determine Age in Adults

Eastern blue tongue lizards come of age when they are about 3 years of age when they have a total length of about 400mm

References:

Blue tongue skinks, 2000, Melissa Kaplan,
22.4.2010, <http://www.anapsid.org/bluetongue.html>

Blue tongue skinks, 2000, Zach Griffith, 22.4.2010,
<http://bluetongueskinks.net/blue.htm>

Blue tongue lizard, nd, Banks town city of progress,
22.4.2010, <http://www.bankstown.nsw.gov.au/wdal/pdfcreate.aspx?dn=UZQobFpB2Jw%3d>

Blue tongue skink, nd, lee Richardson, 22.4.2010, http://www.garden-city.org/zoo/animalinfo/ReptAmph/blue-tongued_skink.htm

Eastern blue tongue lizard, 2010, sea world, 22.4.2010, <http://www.seaworld.org/animal-info/Animal-Bytes/animalia/eumetazoa/coelomates/deuterostomes/chordata/craniata/reptilia/squamata/eastern-blue-tongued-skink.htm>

45 .Housing Requirements



4.4 Exhibit/Enclosure Design

*The exhibit or enclosure should be in a pit and it should have areas that are shaded and area that are in full sun so it allows them to bask in the sun. They shaded are should have a roof to protect them from the elements. Depending on the keepers own opinion the substrate can be of either sand or dirt or grassed area

4.2 Holding Area Design



Holding area is a behind the scenes enclosure used to hold blue tongues for:

- *Vet needs- to go to the hospital when they are sick
- *Breeding- to separate a mother and babies from treat of attack or just to monitor how they are progressing

The enclosure could be a:

- *Pet pack
- *Box
- *Clean garbage bin
- *Glass tank
- *Terrarium

A holding area is a area which is big enough for them to move and display natural behavior or it could be small enough so that it restricts the movement of injured lizards to prevent further injury to themselves, the enclosure needs to be high enough to prevent them climbing out. It should be easy to transport and easy to maintain and clean.

A holding area should have clean substrate e.g. wood chip shavings and should have hollow logs and rocks to hide and dig under, a heating pad at one end of the enclosure, food and water.

References:

Miss j.salkeld, cert 3 captive animals teacher, Richmond TAFE has indicated, 2009(pers.com, 2nd June)

4.3 Spatial Requirements

The enclosure should be 125x125meters as a minimum standard as blue tongues grow to be 45-55cm long

References:

Miss j.salkeld, cert 3 captive animals teacher, Richmond TAFE has indicated, 2009(pers.com, 2nd June)

4.4 Position of Enclosures

A blue tongue lizard enclosure should always face north so it gets sun throughout the day. Make sure it has shade e.g., rocks or somewhere it can escape and keep cool.

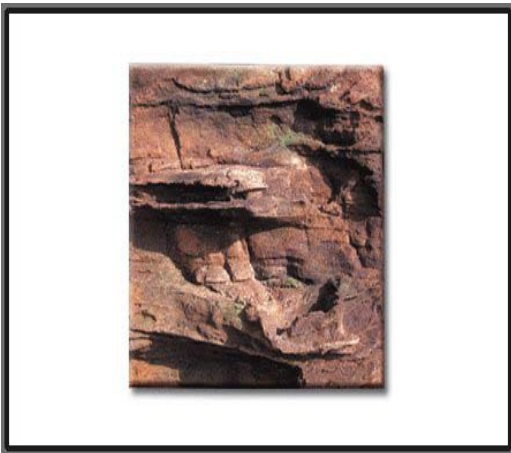
Blue tongue enclosures must be placed so that:

- *it provides direct sunlight throughout the day
- *it provides adequate hiding places for the lizard
- *it provides adequate shade at all times of day
- *it provides areas that are permanently covered and dry

References:

(Governor in council, 6May2003, Victoria, 30 May 2009, <http://www.dpi.vic.gov.au/dpi>)

4.5 Weather Protection



Make sure u provide:

- *Rock ledges
- *Hollow logs
- *Nest boxes

So the blue tongue can escape the weather, a blue tongue must also have appropriate drainage

References:

Miss j.salkeld, cert 3 captive animals teacher, Richmond TAFE has indicated, 2009(pers.com, 2nd June)

4.6 temperature Requirements



The preferred body temperature for a blue tongue lizard is between 30 and 35 degrees Celsius. 40 degrees and higher and the blue tongue will die, make sure you put the heat

lamp up at one end of the terrarium or provide it with a timed thermo regulated heat source.

Outside enclosures:

- *It should be able to get sunlight during the day
- *It should have a thermo regulated heat source during the night
- *lighting stimulates natural feeding and foraging behaviors
- *proper lighting essential in blue tongues as it provides d3 to produce in their skin
- *blue tongues should be placed in sunlight for 20-30 min periods at least 1-2 times a week
- *make sure the lizard has access to shade and cannot over heat
- *artificial light should be replaced every 6 months
- *recommended day and night cycles are 12 hrs day and 12 hrs nights
- *blue tongues should be provided with timers so they get the exact UV requirements

References:

Blue tongue lizard care, 2008, David vella, 9th June 2009

http://www.davidvella.com.au/BlueTongue_dvella.pdf

Miss j.salkeld, cert 3 captive animals teacher, Richmond TAFE has indicated, 2009(pers.com, 2nd June)

*4.7 Substrate



Bark

sand

moss

A blue tongue enclosure should have substrate like the ones listed below:

- *Enclosure dirt
- * Reptile bark
- Peat and sphagnum moss
- * Gravel
- * Sand
- *Leaf litter
- *Pellets
- *Newspaper

When using newspaper use a bigger newspaper e.g. the sun herald so they can't get under it and urinate or defecate and it makes it easy to clean and pull it out.

Vermiculite

newspaper

pellets



References:

Blue tongues stick out, 2006, Donna Fitzgerald, 9 June 2009
<http://www.captivebred.com/Blue%20Tongue%20Article.htm>

4.8 Nest boxes and/or Bedding Material



*Newspaper

*Reptile substrates

References:

Blue tongues stick out, 2006, Donna Fitzgerald, 9 June 2009
<http://www.captivebred.com/Blue%20Tongue%20Article.htm>

4.9 Enclosure Furnishings



*Rocks

*native grasses

*Shallow ponds or Water bowl

*Leaf litter

*Rain proof shelter

*Hollow log

References:

Keeping blue tongue lizards as pets, 2009, reptile keepers, 9th June 2009

http://www.mooloolabapets.com.au/html/blue_tongue_skinks.html

Miss j.salkeld, cert 3 captive animals teacher, Richmond TAFE has indicated, 2009(pers.com, 2nd June)

5 General Husbandry

5.1 Hygiene and Cleaning

Daily:

Distant examinations

Clean food and water bowls

Hose down rails of enclosure if in a pit

Clean glass

Take out any leftover food or fecies

Weekly:

Weed

Disinfect enclosure

Monthly:

Disinfect furnishings,

Complete removal of substrate and replacement,

Clean out water feature,

Replace calcium tablets in water,

Re-mulch, and fertilize plants

Yearly:

Re painting

New furnishings

New plants

New calcium tablets in water

Chemicals used to clean out blue tongue enclosures are:

*F10

*Hot soapy water

*Detergent

Cleaning, disinfecting and sterilizing, 2007, Melissa Kaplan, 9th June 2009

<http://www.anapsid.org/cleaning.html>

5.2 Record Keeping

Records should be kept on veterinary checks

- *Growth
- *Feeding
- *Basic husbandry
- *Breeding
- *Behavior
- *diaries
- *notepads
- *Isis codes into a daily report book
- *daily report book

5.3 Methods of Identification

- *Size
- *Coloration
- *Belly color
- *micro chipping (left inguinal side)
- *liquid paper
- *scale clipping
- *cage card
- *photo
- *

Warratah software, nd, skinks, 9th June 2009

http://www.waratahsoftware.com.au/wp_lizards_skinks.html

5.4 Routine Data Collection

Temperature:

The temperature for a blue tongue lizard terrarium should be between 20-30 degrees Celsius

Behaviour:

The blue tongue's main defence strategy is bluff:

It faces the threat and opens its mouth. The blue tongue inside the pink mouth is an unexpected and vivid sight, designed to frighten off the attacker.

The lizard also hisses loudly and flattens its body which makes it look wider and bigger.

If you pick the lizard up now it will bite you. And it will hurt. Blue tongues have a habit of latching onto your finger and not letting go, which leaves you with a nice bruise.

Some other examples of data collection are

*Facial samples

*Weights

*Health checks

*Breeding

*sloughing

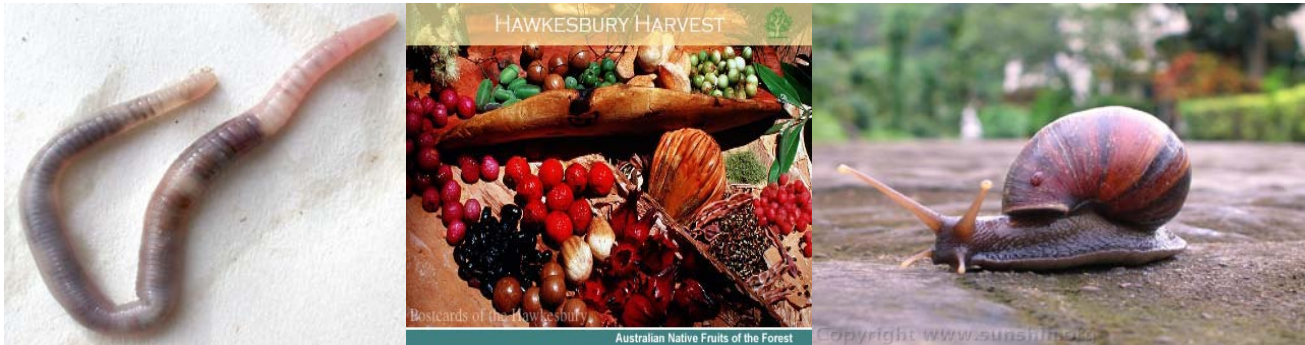
References:

Warratah software, nd, skinks, 9th June 2009

http://www.waratahsoftware.com.au/wp_lizards_skinks.html

6 Feeding Requirements

6.1 Diet in the Wild



*Snails

*Plant material

*worms

*insects

* Native fruits

* Wild Berries

Jackie burn, 1998-2005, blue tongued skink, M.A.Clark, 14th June 2009

<http://whozoo.org/students/juaben/blutngsk.htm>

Eastern blue tongue skink, 1997-2009, Busch Entertainment Corporation, 14th June 2009

<http://www.seaworld.org/animal-info/Animal-Bytes/animalia/eumetazoa/coelomates/deuterostomes/chordata/craniata/reptilia/squamata/eastern-blue-tongued-skink.htm>

6.2 Captive Diet

Cricket's



super worm's meal worms



fruit and veg



*Eastern blue-tongue skinks are omnivorous (eating both plant and animal matter). Generally a diet consisting of 60% plant and 40% animal will provide a healthy mix for your blue-tongue skink.

*Blue tongues diet in captivity includes:

*Insects-crickets, locusts & snails

* Mice (pinkies and fluffs)

*Dog/cat food

*Eggs (boiled or scrambled)

*Meal worms

*lean meat

*fruit-mango- banana, cherries, nectarines, pears, strawberries, blueberries, peach, plums, kiwi& figs

*vegetables- carrots, green beans, corn, broccoli, tomatoes, zucchini, squash, spinach, lettuce, collard greens

*Flowers-dandelions, roses, carnations

*Others-figs and oats

*fresh water should be supplied for your blue tongue daily

*They will get fed more in the summer time and less in the winter.

*Alternative diets used may be:

Insectivore mix

Dog pellets (soaked in water so it goes soft for them)

Minced meat

Dry dog food



wet dog food



flowers



insectivore mix



References:

Profile-blue tongue lizard, 2006, blue tongue lizard, 14th June 2009
<http://www.zoo.utas.edu.au/tfprofiles/tasanimals/Bluetongue2.htm>
 Blue tongue skink, 2005, exotic-pets.co.au, 17.6.2009,
www.exotic-pets.co.uk

6.3 Supplements:



Calcium supplements are a good idea for growing blue tongues to help prevent metabolic bone disease. A light sprinkling with each meal seems to be satisfactory although some keepers recommend a less frequent dose. Ensure that supplements are mixed in with food items. Recent research shows that it is best to void d3 supplement if lizards are exposed to the sunlight and UV light. A good supplement to use on blue tongue food is zoo med repetitive

Manufacturer's details for zoo med repetitive:

Name: zoo med repetitive 58.7g

Stock code: 9761210362

Address: cnr of Carrington ave & talbragar st

Dubbo, nsw, 2830

Phone (02)6881883

Email: www.outbackoceans.com.au

References:

Reptile food/supplements, 2006, practical-webs, 17.6.2009

[www.petshop-online.com .au/index.htm](http://www.petshop-online.com.au/index.htm)

6.4 Presentation of Food

*It is best to place the food in a dish, this helps to keep the enclosure clean, but blue tongue skinks like to actively hunt for food. Adult blue tongues should be fed every three days, young blue tongues should be fed ad lib meaning whenever they will eat. Any uneaten food should be removed within twenty four hours.

* Worms are scattered around enclosure

*behavioral enrichment include: logs, rocks, eggs with a hole in it so they can break it open, burying the worms in the soil so they use natural foraging behavior, snails

*activity foods can include: worms, woodie, slugs anything that moves

Week:	Group:	Ingredients & quantity:
Monday	Meat & vegetables 5-10 bite sized pieces a food	2 pinkie mice cut into pieces & dusted with zoomed reptivite, a pinch of

		grated carrot, 1 quarter of a tomato, spinach 1 leaf chopped.
Tuesday	Vegetables & flowers	1 lettuce leaf finely chopped, 1 corn cut off the cob, 1 broccoli flower finely chopped
Wednesday	Meat & enrichment	2 tablespoons of canned dog food dusted with zoomed reptivite, 1 egg punctured with a small hole
Thursday	Fruit & meat	2 fluffys cut into pieces dusted with zoo med reptivite 2-3 strawberries, 2 grapes,
Friday	Meat & vegetables	2 table spoons of cat food, sprinkled with zoo med reptivite 1 squash cut into pieces,
Saturday	Vegetables & flower	2-3 Green beans cut into pieces, escarole cut up, grated carrot, rose petals cut
Sunday	fruit & enrichment	2-3 grapes, 2 strawberries, 1-2 blue berries cut into pieces a pinch of worms buried into the substrate and some on top

Profile-blue tongue lizard, 2006, blue tongue lizard, 14th June 2009

<http://www.zoo.utas.edu.au/tfprofiles/tasanimals/Bluetongue2.htm>

Blue tongue skink, 2005, exotic-pets.co.au, 17.6.2009,

www.exotic-pets.co.uk

Keeping lizards in captivity, 2000, Dr bob Donnelly, 27, 4,

2010, http://www.petalia.com.au/templates/StoryTemplate_Process.cfm?Story_No=371

7 Handling and Transport



Wrong way to hold a blue tongue lizard

right way to hold a blue tongue

A blue tongue can be transported in a cloth bag with the opening secured with tightly tied string or pull tie or elastic band. The bag should be placed in a wooden crate insulated with polystyrene. They need to be kept out of draughts. And during transportation should be kept at about 20 degrees to avoid any health problems.

References:

Handle with care, 2010, rspca, 28.4.2010, <http://content.www.rspca.org.uk>

7.1 Timing of Capture and Handling

Timing of the release

Blue tongues are diurnal and diurnal animals should be released in the early morning. In southern Australia, blue tongues may be held over winter until warmer weather arrives. This is to prevent a released animal not being able to find food, a hidey hole or avoid predators due to the low ambient temperature hindering its movements. Hard release is often practiced in the case of reptiles.

7.2 Catching Bags

Appropriately sized bag such as:

- *Cloth sack
- *Laundry bags
- *Flour sack
- *Pillow case

Make sure to run your finger along the seems to check for holes

Include space filling materials such as:

- *Newspaper crumpled up or shredded

References:

Handle with care, 2010, rspca, 28.4.2010, <http://content.www.rspca.org.uk>

7.3 Capture and Restraint Techniques

Physical restraint:

Blue tongue need to be held behind the head on their neck as they will attempt to bite. If they are small, this will also restrain their front legs. Support their back end with another hand. It can help to cover their eyes with a towel. This technique varies with the size of the lizard. If you do not support the lizard so that it feels comfortable, then it will struggle violently and attempt to twist out of your hands.

Handle with care, 2010, rspca, 28.4.2010, <http://content.www.rspca.org.uk>

7.4 Weighing and Examination

The lizard can be weighed in a bag on hanging scales and can be restrained for examination. In the interest of monitoring animal health, record weights (DPI 2004).

7.5 Release

*Make sure to release the blue tongues towards rocks, nest boxes or bushes so if they run off when released they can hide

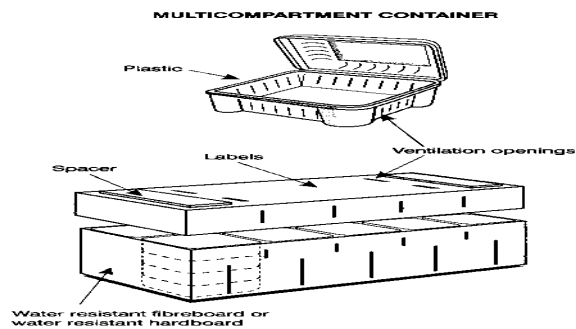
7.6 Transport Requirements

All bags should have some sort of packaging material such as: crumbled paper, animals in the same container or bag should belong to the same size class to avoid problems with smaller animals. The maximum number of animals must not be increased even when in a larger bag or container. If the bag is suspended it must be suspended horizontally at opposite ends of the bag the maximum numbers of animals per bag should be divided by two for lizards. Rigid containers can be used instead of bags with maximum of 25 animals, up to 30 cm total length. The length of the container should be at least snout to vent length plus half the tail length. These containers must be rigid and able to support the entire weight of all the containers when stacked upright and if turned upside down, without falling structurally. The size of these containers must enable the animals to have contact with their whole ventral surface to the floor of the container. A lizard whose length range from 90-120 cm svl requires double bags for shipping.

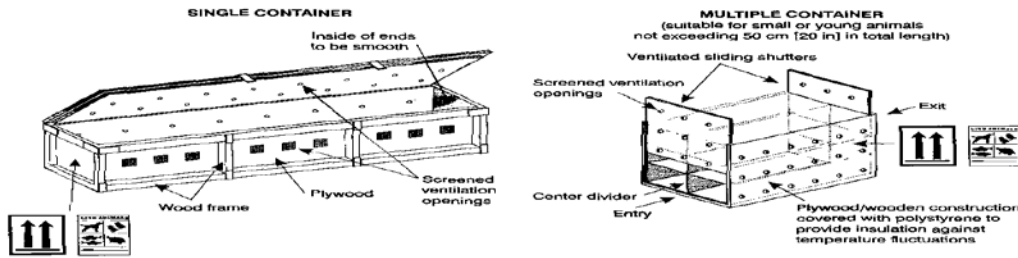
References:

IATA, 2009, live animals regulation, 36th edition, IATA, Canada

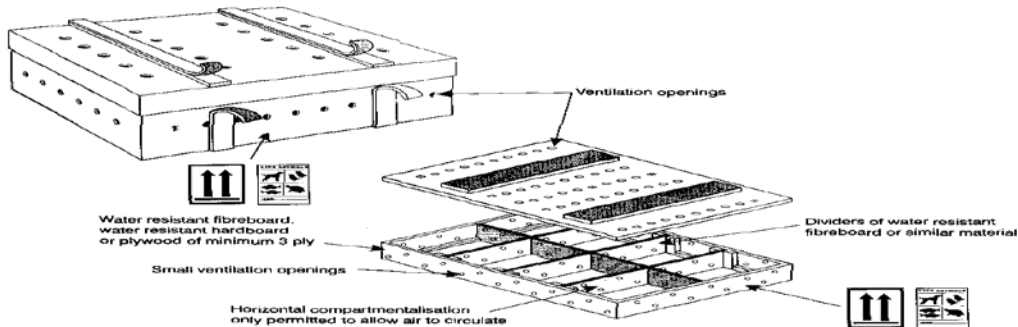
7.6.1 Box Design



EXAMPLE:



EXAMPLE:



7.6.2 Furnishings

All containers should have some kind of packaging i.e. crumpled paper

References:

IATA, 2009, live animals regulation, 36th edition, IATA, Canada

7.6.3 Water and Food

The need to feed or water this species during the normal transport time must not arise. Under severe delay and under certain circumstances watering may be recommended if advised by a specialist.

References:

IATA, 2009, live animals regulation, 36th edition, IATA, Canada

7.6.4 Animals per Box

Snout vent length (svl)	Body-width(bw)	Maximum number of animals per bag	Maximum bag size
20 cm (8 in)	5cm(2in)	1	Depends on size of animal
15-20 cm (6-8in)	2.5-5cm(1-2in)	15 10	45-60cm(18x24in) 30-45cm(12x18in)
10-15cm (4-6in)	2.5cm(1in)	30 20	45-60cm(18x24in) 30-45cm(12x18in)
10 cm (4in)	2.5cm(1in)	30	30-45cm(12x18in)

References:

IATA, 2009, *live animals regulation, 36th edition, IATA, Canada*

7.6.5 Timing of Transportation

Early mornings and late afternoons are ideal because it is when they are less active
Avoid transporting during the middle of the day because they are unable to thermo regulate and can get too hot and die

References:

IATA, 2009, *live animals regulation, 36th edition, IATA, Canada*

7.6.6 Release from Box

*Make sure to release the blue tongues towards rocks, nest boxes or bushes so if they run off when released they can hide

References:

Barnard, M, 1996, *reptile keepers handbook*, Krieger publishing company, Malabar, Florida

Vosjoli, d, 1997, *lizard keeper's handbook*, Philippe de vostojsoli, 1997

Caring for native reptiles, 2004, Anne fowler,

28.april.2010, <http://www.ntwc.org.au/pdf/caring%20for%20injured%20reptiles2004.pdf>

8 Health Requirements**8.1 Daily Health Checks****Healthy blue tongue:**

- *bright alert responsive
- *check the blue tongue is feeding properly
- *the blue tongues skin is free from lesions
- *all limbs are strong of the blue tongue not swollen
- *eyes are clear and not sunken into the sockets
- *nostrils are dry and clear from discharge
- *muscular tail
- *back bone cannot be seen

Unhealthy blue tongue:

- *weight loss
- *loss of appetite
- *mucus in mouth or nose
- *swelling
- *lethargy
- *bumps sores or abrasions on skin
- *labored breathing
- *paralysis of limbs or tail
- *abnormal faeces

*retained sloughs can impact blood flow on arms and toes

References:

Turner, G, 2001, keeping blue tongue lizards, Australian reptile keeper publications, Bendigo Victoria

8.2 Detailed Physical Examination

Start from the head and work your way down making note of any unwell signs

- *check its demeanor-is it responsive to your touch
- *is its nose clear
- *do their eyes respond to light
- *is its mouth pale pink
- *are the legs weight bearing, same length, all toes present
- *is the cloaca clear and clean and pink
- *is the spine and tail fat enough not sticking out
- *free of abrasions, not dropped off

8.2.1 Chemical Restraint

Checks that can be done under anesthesia:

- *metabolic bone disease checks-via x-ray
- *blood tests
- *endo and ecto parasite check-by swabbing the feces
- *body condition

References:

Vosjoli, p.d, 1997, lizard keeper's handbook, Philippe de vosjoli, United States of America

8.2.2 Physical Examination

8.3 Routine Treatments

- *mite treatments- coat the animal with reptile relief formula, and rub it all over with a cloth top to bottom avoiding the eyes, but coating the outer ear. Do not repeat until 3 days later. Mites will usually be gone, but even if they're not, I would repeat the process 3 days later. Now, next step is to clean the infected terrarium. Clean it thoroughly with the Reptile Relief spray. It's a good idea to clean your tank once before your first treatment (use the mite spray, rinse, then clean again with water/bleach solution), and again after your second treatment (using mite spray only).
- *sloughing properly-bathe in warm water and peel off with either hands or tongs.
- *weight, length records
- *worming-in food or give ivermectin 0.2mg/kg by mouth
- *injections are given in the front half of the body (triceps muscle or spinal muscle)
- *oral medications can be given via syringe into the corner of the mouth or into food items

*eggs can last for 45 days

References:

Vosjoli, p.d, 1997, lizard keeper's handbook, Philippe de vosjoli, United States of America

8.4 Known Health Problems

***Mites & ticks**

Cause: Heat they attach themselves anywhere on the body but tend to like inside the ears, limbs, body junction, armpits, groin and eye lids.

Signs: White flecks (mite faeces), restlessness, trying to immerse themselves in water, unusual digging activity, raised scales, loss of appetite.

Treatment: Thoroughly clean the enclosure

Mites: plastic container with top of decent, Enclosure should be partially covered over but with some airflow. Mites will usually be killed within 12 hrs, make sure to destroy any cage furnishings which mites are being found on.

Ticks: daub with methylated spirits & pull off. Remove a few over a period of several days

Prevention: Pest strips can be used as prevention because the reptile doesn't have to be removed unless it starts to affect the blue tongue.

Shedding problems:

Cause: Insufficient humidity, substrate or landscaping, illness

Signs: Half sheds, Shed still sticks to the skin

Treatment: Soak the blue tongue in shallow Luke warm water. Ensure there is enough water to cover all but the head, leave in the tub for half an hour to an hour .rub it dry

Prevention:

Make sure it has correct humidity levels; Make sure it has rocks or logs to rub against

Metabolic bone disease:

Cause: Lack of calcium in the diet Lack of vitamin d3 inadequate calcium phosphate ratio (2 parts calcium to 1 part phosphorus) Excessive amounts of vitamin a, lack of sun uva and uvb rays.

Signs: Flexible lower jaw, skull bones or limbs Deformities of the jaws, back bone and tailwind limb paralysis, listlessness Fibrous osteodystrophy resulting in swollen appearance of jaws and limbs

Treatment: Daily oral administration of calcium & vitamin d3 supplements exposure to sunlight or another uvb source in severe cases a veterinarian can administer inject able calcium

Prevention: Supply sufficient amounts of calcium Sprinkle calcium powder on the blue tongues food before feeding it out Allow to go out in the sun for 30 mins a day

Swellings, lumps:

Cause: Infections

Signs: Swelling of limbs Lumps on limbs

Treatments: Incise, flush and treat with antibiotics

Prevention: Keep area clean correct environmental condition

Gastroenteritis:

Cause: Infection in the GI tract

Signs: Runny or discolored stools bloody stools smelly stools weight loss listlessness loss of appetite

Treatment: Faecal examination Flagellate protozoan's are commonly caused with gastroenteritis and are easily treated with flagyl at a dose of 50mg/kg orally for four days

Prevention: Make sure food is fresh and good quality

Salmonellaosis:

Cause: Spread of the bacteria salmonella. From animals to humans and vice versa

Signs: Listlessness Loss of appetite Weight loss Wet, loose stools

Treatment: Get vet to perform a faecal exam

Do a culture test to find out more and try to treat it from there

Prevention: Wash hands before and after handling blue tongue

Scale rot and blister disease

Cause: enclosures are too damp or humid and poor hygiene

Sign: numerous yellow to reddish brown swellings, large ulcerated patches of scales, can result in loss of digits

Treatment: remove affected areas of skin with tweezers, cleanse with diluted disinfectant solution, twice daily with betadine and silvazine anti-microbial cream, and cover with non-stick dressing that it taped into place; severe cases should be referred to a vet for antibiotic treatment

Prevention: make sure enclosure is well drained, make sure the enclosure has plenty of shade, clean enclosure regularly, and remove faeces and uneaten food straight away.

Nutritional disorder

Cause: there are two types that can affect blue tongues osteodystrophy and obesity, the cause is an imbalance of calcium to phosphorus ratio, and feeding blue tongues too much.

Signs: osteodystrophy: limb, back or lower jaw deformities, bone fractures, wearing of the large juvenile teeth **obesity:** thick tail that widens past the base

Treatment: modify the diet so it includes the correct calcium phosphate ratio such as beans, carrots, alfalfas, figs, melon and dried raisin. Obesity: remove fatty items and/or reduce the frequency of feeding.

Prevention: ensure the blue tongue is getting the right calcium phosphate diet by feeding it the correct diet, feed less frequently.

Internal parasites:

Cause: stress of or a debilitating environment may increase the number of parasites, particular parasites endo parasites of concern are: round worm, protozoa and coccidia.

Signs: weight loss, loss of appetite, quiet, loose faeces.

Treatment: fecal floatation performed by the vet, worms are treated with ivermectin 0.2mg/kg orally.

Prevention: regular checkups by the vet, facial floatation

Respiratory infections:

Cause: vitamin A deficiency, specific bacterial or fungal infections and damp cold conditions.

Signs: lack of appetite, sneezing frequently, and audible or labored breathing, slight mouth gaping, mucus discharge around the mouth and nose, and tendency to elevate their head.

Treatment: immediate provision of a warm dry environment and antibiotic treatment determined by the veterinarian

Prevention: make sure the area is always kept clean and dry with sufficient vitamin A provided.

Failure to feed:

Cause:

Lack of proper diet, environmental problems, social conditions, or too cold conditions

Signs: listlessness, weight loss

Treatment: warm up, check stools, place pre-killed animal in the reptiles mouth, liquefied diet can be offered by using a large syringe, dispense food orally e.g. baby food, banana mixed with chicken baby food plus water plus liquid vitamins.

Prevention: find a proper diet, ensure the environment and social conditions are set up to suit the blue tongues needs.

Sudden weight loss in imported lizards:

Cause: internal parasites, prolonged stress, social stress

Signs: weight loss

Prevention: make the import as quiet and less stressful as possible, try not to disturb the blue tongue as much as possible.

Conjunctivitis:

Cause: damage to the surface of the eye

Signs: watery discharge from the eye, frequent blinking, fused eye lids, rubbing the eye against surfaces

Treatment: two drops of chloramphenicol eye drops or two drops of 5% boric acid powder dissolved in warm water in affected eye twice daily or until signs disappear.

Prevention: remove Sharpe surfaces in the enclosure

Reference:

Vosjoli, p.d, 1997, lizard keeper's handbook, Philippe de vosjoli, United States of America

8.5 Quarantine Requirements

Specific tests:

Facial test & Bloods

Duration during quarantine

3 months of there is no sign of ill health are apparent by the time they can be transferred to the general collection.

Disease considerations/incubation periods:

Quarantine (*'kwárun'teen'*) can be defined as the restrictions placed on the entering or leaving of enclosures, premises, regions or countries where a case of infectious disease exists or is suspected. It is usually done by enforcing isolation for certain periods of time.

A quarantine station is an institution which houses animals that have to serve out an mandatory period of quarantine because they have come from an infected area or have been exposed to, or affected by one or more exotic (i.e. from other countries) diseases.

Before animals are allowed to enter any level of quarantine they should be examined by a specialized exotic veterinarian. These animals should be handled with latex gloves. Animals must be thoroughly inspected for external parasites and a faecal float will identify internal parasites. Problems must be promptly treated.

While animals are quarantined they should be observed for any signs of disease. If any signs are observed it should be treated accordingly and the quarantine period should be extended to the original period extending from when the animal is healthy.

Conjunctivitis: 48 hrs incubation, symptoms begin within 2-5 days, symptoms are gone within a week.

Salmonella sis: 48 hr incubation, last 2-5 days

References:

Blue tongue lizards, 2007, northern tablelands wildlife carers, 11th sept, 2009, <http://www.ntwc.org.au/>
www.revet.co.za/heal_bio-security_quarantine.php

9 Behavior

9.1 habits

*Usually active during the day, they shelter at night under rocks, logs or leaf litter. Early in the morning they emerge to bask in the sunny areas and look for food during the warmer parts of the day.

*depending on the size of the animal, the enclosure and what sex blue tongues you have is dependent on how many blue tongues you can have in one group. They may be housed together but just be aware that fighting may occur and to split them up if you find that happening.

*during the winter months blue tongues undergo brumation which is the same as hibernation for mammals were they will enter a period of inactivity during the cooler months, blue tongues will bury themselves in the soil and leaf litter and stay there until the weather warms up again. Lizards kept indoors usually will not enter brumation although it is important in some reptiles; brumation is not necessary to maintain the health of the blue tongue. It is often needed to induce breeding.

9.2 reproductive behaviors:

*during courtship, to warn off other males they will open their mouths and hiss and push themselves up to make them look bigger

*blue tongues should be kept separately from others especially other males because they fight, unless they are a breeding pair then they can stay together unless they are showing too much aggression towards one another. Blue tongues will also:

Tail each other

*bite each other

*the male will hold and seek out the female

*the time of year when these behaviors occur is from September to November.

9.3 bathing

*it is recommended in housing to put a water dish in the enclosure in case the blue tongue wants to submerge itself in the water .but generally when they do that they might have mites and are trying to drown all the mites and need to be treated immediately.(see health section)

9.4 behavioral problems

*Blue tongues can be timid at first but will settle and become tolerant of gentle handling. Never hold your lizard upside down and try to always provide something for its feet to contact. After a few days without exposure to humans, they will revert to their natural defensive behavior of opening mouth and hissing when approached. This quickly subsides again. They have small peg-like teeth, but strong jaws.

References:

Care of Australian Reptiles in Captivity – John Weigel. Reptile Keepers Association, Gosford, NSW.

Keeping Bluetongue Lizards – Grant Turner. Australian Reptile Keeper Publications, Melbourne, Victoria.

Blue tongue lizards, nd, echuca moama wildlife, 3rd December 2009, <http://www.echuca.ws/echuca-native-animals/blue-tongue-lizard.html>

David vella, February 2008, blue tongued lizard care, David vella, 3rd December 2009 <http://www.davidvella.com.au/bluetonguedvella.pdf>

9.5 behavioral enrichment

*Techniques used to minimize behavioral problems:

*feed at different times of the day

*teach the public how to handle them properly (if they are wild caught to leave them alone and call wires or another rescue organization

*methods to increase blue tongues time on display:

*lighting

*make the enclosure cooler

*extend day length

*change feeding times

References:

Care of Australian Reptiles in Captivity – John Weigel. Reptile Keepers Association, Gosford, NSW.

Keeping Bluetongue Lizards – Grant Turner. Australian Reptile Keeper Publications, Melbourne, Victoria.

Blue tongue lizards, nd, echuca moama wildlife, 3rd December 2009, <http://www.echuca.ws/echuca-native-animals/blue-tongue-lizard.html>

David vella, February 2008, blue tongued lizard care, David vella, 3rd December 2009 <http://www.davidvella.com.au/bluetonguedvella.pdf>

9.6 Introductions and Removals

*separate for some time before introduction into enclosure

*opening its mouth ,hissing and puffing itself out ,If the blue tongue displays these they should be remove from the enclosure

*the longer the blue tongue is away the harder it is to get it back into a group

References:

Care of Australian Reptiles in Captivity – John Weigel. Reptile Keepers Association, Gosford, NSW.

Keeping Bluetongue Lizards – Grant Turner. Australian Reptile Keeper Publications, Melbourne, Victoria.

Blue tongue lizards, nd, echuca moama wildlife, 3rd December 2009, <http://www.echuca.ws/echuca-native-animals/blue-tongue-lizard.html>

David vella, February 2008, blue tongued lizard care, David vella, 3rd December 2009 <http://www.davidvella.com.au/bluetonguedvella.pdf>

9.7 Interspecific Compatibility

*males are very territorial towards each other and their territory can cover hectares and overlap each other

*they will not eat young of other offspring or eggs of other species

References:

Care of Australian Reptiles in Captivity – John Weigel. Reptile Keepers Association, Gosford, NSW.

Keeping Bluetongue Lizards – Grant Turner. Australian Reptile Keeper Publications, Melbourne, Victoria.

Blue tongue lizards, nd, echuca moama wildlife, 3rd December 2009, <http://www.echuca.ws/echuca-native-animals/blue-tongue-lizard.html>

David vella, February 2008, blue tongued lizard care, David vella, 3rd December 2009 <http://www.davidvella.com.au/bluetonguedvella.pdf>

9.8 intraspecific compatibility

*if two blue tongues are put in the same enclosure and especially if they are both housed with a female they will fight for territory and mating rights of the female

References:

Care of Australian Reptiles in Captivity – John Weigel. Reptile Keepers Association, Gosford, NSW.

Keeping Bluetongue Lizards – Grant Turner. Australian Reptile Keeper Publications, Melbourne, Victoria.

Blue tongue lizards, nd, echuca moama wildlife, 3rd December 2009, <http://www.echuca.ws/echuca-native-animals/blue-tongue-lizard.html>

David vella, February 2008, blue tongued lizard care, David vella, 3rd December 2009 <http://www.davidvella.com.au/bluetonguedvella.pdf>

10 Breeding

10.1 mating System

*blue tongues are monogamous the male will mate with one female with no other individuals involved, they will come together during the breeding season and sometimes may even stay together during their adult lives

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009, <http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

Blue tongues, unknown, 20th November 2009, www.convictcreations.com

10.2 Ease of Breeding

It's important to provide an environment that is conducive to the breeding event. For example, introduce the female into the male's cage. The male is doing all the work here, so he should be in the place he's accustomed too (this isn't particularly important, so if

you were unable to use the male's enclosure for whatever reason it's ok). Also, remove all substrate before introducing the pair, or cover it completely with a towel. When they mate, the male's hemipenes are fully exposed for a long period of time (right before actual copulation that is, and for a bit after). A single touch to almost any type of substrate will stick to him like crazy, and then when he mates with the female, the substrate could get trapped inside her (and him). Once you have introduced them, just sit and observe. The male could start nipping at the female's hind quarters, he may bite at her side, they could circle each other, they could lash out at each other, or they could do nothing. Be prepared. The female's tail will probably flail around erratically, which is a good sign. If all goes well, the male will eventually secure a firm neck hold on your female, and they will attempt to mate. The female cooperates by lifting her tail, the male tucks his tail underneath, and copulation takes place. This can last anywhere from 30 seconds to even a few minutes (in the wild they have been seen copulating for much, much longer). **You should watch the entire event to make sure feet and tails aren't getting torn off. NEVER leave them on their own unattended for ANY amount of time. This is extraordinarily dangerous. During the breeding season (or any time during the year really), if animals are left together, they can and will breed each other senseless causing terrible damage. Remember when breeding, it's important to only put them together for the approximate 5-10 minute session, and then separate them immediately**

References:

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,

<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

Blue tongues, unknown, 20th November 2009,

www.convictcreations.com

10.3 Reproductive Condition

10.3.1 Females

*built up sufficient fat reserves which can later be a nutrient for developing embryos.

References:

Keeping Bluetongue Lizards – Grant Turner. Australian Reptile Keeper Publications, Melbourne, Victoria.

10.3.2 Males

*adequate fat reserves to fuel the intense activities associated with procuring and defending a female.

References:

Keeping Bluetongue Lizards – Grant Turner. Australian Reptile Keeper Publications, Melbourne, Victoria.

10.4 Techniques Used to Control Breeding

*separation of sexes

References:

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

Blue tongues, unknown, 20th November 2009,
www.convictcreations.com

10.5 Occurrence of Hybrids

*blue tongues have been known to hybridise with other species since the early 1900s

References:

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

Blue tongues, unknown, 20th November 2009,
www.convictcreations.com

10.6 Timing of Breeding

*blue tongues are seasonal breeders

*The male will pursue females (and fight other males). Mating is a rough affair and many females carry scars from the male's teeth...

Blue-Tongues in New South Wales are often seen crossing roads in pairs. Sometimes the male is following the female. Sometimes the male is carrying the female.

References:

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

Blue tongues, unknown, 20th November 2009,
www.convictcreations.com

10.7 Age at First Breeding and Last Breeding

*blue tongues start breeding when they are two years old

Reference:

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

Blue tongues, unknown, 20th November 2009,
www.convictcreations.com

10.8 Ability to Breed Every Year

The eastern blue tongue Lizard breeds annually, but other species breed only every second year. How often they breed also depends on the amount of food available

References:

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

10.9 Ability to Breed More than Once Per Year

*the young blue tongues are precocial when they are born and are ready to look after themselves as soon as they are born.

- *blue tongue mating occurs from September to the end of November
- *in the wild depending on the availability of food is depending on how much the breed

References:

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

10.10 Nesting, hollow or Other Requirements

- *blue tongues don't require nests or hollow areas as they give birth to live young and leave them to fend for themselves

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

Blue tongues, unknown, 20th November 2009,
www.convictcreations.com

10.11 Breeding Diet

- *feed the blue tongue the same foods just a lot bigger then what it normally has
- *greens are most eaten and crickets because they need the right nutrition
- *gestation is about 3-5 months after mating and the young are self sufficient as soon as they are born..

References:

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

10.12 Incubation Period

- *blue tongues give birth to live young so they don't have an incubation period their gestation is 90-150 days

10.13 Clutch Size

- *a female blue tongue lizard can have up to 25 young born at a time.
- *the babies weigh 10-20 g when they are born
- *sex of the baby blue tongues will be unknown until they are older

References:

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

10.14 Age at Weaning

- *baby blue tongues as mentioned above are self sufficient from the moment they are born
- *the female will breed in 2 years time after her last clutch or depending on food she might mate before.

The Australian blue tongued lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tounge-lizard.html>

Blue tongues, unknown, 20th November 2009,

www.convictcreations.com

10.15 Age of Removal from Parents

The embryos develop in the female's oviduct with the help of a placenta, which is as well-developed as that of many mammals. At birth, the young eat the placental membranes, and within a few days shed their skin for the first time. The young are ready to look after themselves straight after birth, and disperse within a few days.

References:

Eastern blue tongue lizard, 2009, Australian museum, 20th November 2009,

<http://australianmuseum.net.au/eastern-blue-tongue-lizard>

10.16 Growth and Development

*newly born blue tongues are miniature versions of adults usually with the same pattern and coloration as adults, but dull scales, disproportionately large heads and big appetites. It is quite normal for blue tongues to start feeding immediately although some may go a day or two before they begin to feed. The growth of the blue tongue depends on the diet and frequency of feeding. If the blue tongue is feeding on a balanced diet then growth will occur. However the rate at which growth occurs depends on the environment that you provide for it, in the wild blue tongues reach maturity by 3 years old, growth continues throughout their entire life. In captivity you have the ability to affect the growth of the blue tongue whether you slow grow the blue tongue or rapid grow the blue tongue.

References:

Keeping Bluetongue Lizards – Grant Turner. Australian Reptile Keeper Publications, Melbourne, Victoria.

11 Artificial Rearing

Eastern blue tongue lizards give birth to live young and are precocial and completely ready to go shortly after they are born however, not all reptiles are precocial some are altricial which means they need to be cared for if not by their parents by a keeper. Some examples of this are:

Turtles/tortoises

Crocodiles

Iguanas

Water dragons

Geckos

Veiled chameleons

Panther chameleons

Monitors and some snake species

For this part I've chosen to do the bearded dragon

Margret a. wissman, 2006, reptile reproduction from egg to adult, exotic pet vet.net, 29th April 2010, <http://www.exoticpetvet.net/reptile/rerepro.html>

11.1 Incubator Type

*preparation for incubation of the eggs prior to laying is important. And incubator needs to be prepared to maintain the eggs at a temperature of 29 degrees it needs to be set up and calibrated in the incubation room for at least 24 hrs before it is needed, in order to make sure that it maintains the requires temperature, the temperature of the incubator should be readable without having to open it .if the incubator temperature varies from its setting, then there should be a alarm to allow immediate action to be taken

Referencing:

Raferty.a, 2002, bearded dragon, ring press books, surrey

R.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragon, Barron's educational series, New York

Darren green, Larson, 2001, keeping bearded dragons, Australian reptile keeper publications, Bendigo Victoria

11.2 Incubation Temperature and Humidity

The incubator should be set at a temperature of between 28-31 degrees Celsius; the eggs need to be regularly inspected during that period. Incubators set at a lower temperature will take longer to incubate or may not even hatch at all. Be careful when checking the eggs to remove it gently and gently fan the eggs several times to refresh the old or stale air. Embryo development requires fresh air and without it will suffocate the embryo, in saying that make sure to check the vermiculite to make sure it is still moist enough and top up with water as required. If the vermiculite is too dry it will kill the embryo, too much water will make the eggs swell excessively, if that happens leave the lid off for an hour. Towards the end of the incubation about 10-14 days before hatching the eggs will lose moisture and feel softer. Repeating eggs may change in colour and will allow more incubation time incubation at 28-31 degrees will take 54-58 days. After one hatchling splits the egg the others will follow, it takes 3 – 4 days for the bearded dragon hatchlings to leave the egg DO NOT help them leave the eggs.

Referencing:

Raferty.a, 2002, bearded dragon, ring press books, surrey

R.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragon, Barrons educational series, New York

Darren green, Larson, 2001, keeping bearded dragons, Australian reptile keeper publications, Bendigo Victoria

11.3 Desired % Egg Mass Loss

During incubation eggs lose weight, 20% of their laying weight. Keepers are only interested in the weight loss from the start of incubation to when they internally pip. This is approximately 15% for all species.

Reference:

Harvey rob, 1990, practical incubation, Rob Harvey, farnham, surry

11.4 Hatching Temperature and Humidity

The temperature of a hatchling bearded dragon should be between 30-35 degrees Celsius

Referencing:

Raferty.a, 2002, bearded dragon, ring press books, surrey

R.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragon, Barron's educational series, New York

Darren green, Larson, 2001, keeping bearded dragons, Australian reptile keeper publications, Bendigo Victoria

11.5 Normal Pip to Hatch Interval

*after the first bearded dragon slits the first egg, the others usually soon follow and it can take up to 3-4 days for the lizards to actually leave the egg. DO NOT help them leave the egg.

Referencing:

Raferty.a, 2002, bearded dragon, ring press books, surrey

R.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragon, Barron's educational series, New York

Darren green, Larson, 2001, keeping bearded dragons, Australian reptile keeper publications, Bendigo Victoria

11.6 Diet and Feeding Routine

Feeding should be done a day after they have been removed from the incubator, to start they should have appropriate sized crickets, termites, flies and other insects. These should be supplied 2-3 times a day as well as grated fruit and vegetables. Make sure that every second day the insects are dusted with calcium powder. This feeding routine should be done for 6-8 weeks. If lizards are being attacked the problem lizards should be removed from the enclosure. It is not recommended that juvenile bearded dragons are not fed meal worms or insects that are too big until they are big enough as it can cause impaction.

Referencing:

Raferty.a, 2002, bearded dragon, ring press books, surrey

R.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragon, Barrons educational series, New York

Darren green, Larson, 2001, keeping bearded dragons, Australian reptile keeper publications, Bendigo Victoria

11.7 Specific Requirements

Do not hibernate juvenile bearded dragons during their first winter, because juveniles are so small their temperature can quickly rise and fall and any sudden cooling could cause any uneaten food to rot in their stomach resulting in death. Adults are best kept at an optimum temperature all year round until they are adults. It is important they have exposure to UV rays.

Referencing:

Raferty.a, 2002, bearded dragon, ring press books, surrey

R.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragon, Barron's educational series, New York

Darren green, Larson, 2001, keeping bearded dragons, Australian reptile keeper publications, Bendigo Victoria

11.8 Data Recording

Regular weight and length measurement is important to keep an eye on the growth of your bearded dragon and make sure they are growing normally; recording dates of mating can help with finding out when the egg deposit and hatching will happen. Writing down how much and what is eaten and when is a good idea to keep a record of, if there is anything wrong loss of appetite is generally one of the first things that happens. Keeping records of temperature will help diagnose any environmental problems; records are a great way to help the vet find out what is wrong with sick bearded dragons

Referencing:

Raferty.a, 2002, bearded dragon, ring press books, surrey

R.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragon, Barron's educational series, New York

Darren green, Larson, 2001, keeping bearded dragons, Australian reptile keeper publications, Bendigo Victoria

11.9 Identification Methods

* Sexing very young Bearded Dragons is somewhat difficult, but determining sex in juveniles over the age of three months is relatively easy. By holding the dragon in the palm of your hand with its tail facing you, carefully fold the tail up over the back and examine the area just above (posterior to) the [cloacal](#) opening.

In males, hemipenial bulges can be seen on each side of the tail. The bulging [hemipenes](#) will also be separated by an indentation in the center of the tail between the two hemipenes. The hemipenial bulges are absent in females and the viewer will see only a slightly raised mound in this region.

References:

Animal world, 2009, bearded dragon, David Brough, 20th of April 2010,

[http://animal-world.com/encyclo/reptiles/lizards_agamids/BeardedDragon\(Inland\).php](http://animal-world.com/encyclo/reptiles/lizards_agamids/BeardedDragon(Inland).php)

11.10 Hygiene

The cage and food and water bowls should be cleaned routinely with a 1:10 dilution of household bleach. Rinse the items well after cleaning. Bearded Dragons can harbor the bacteria *Salmonella*. Be sure to wash your hands after handling the Bearded Dragon or its cage.

Reference:

Drs foster and smith, 1997-2000, pet education, 29th April
2010, <http://www.peteducation.com/article.cfm?c=17+1796&aid=2730>

11.11 Behavioral Considerations

Remove larger dragons from the enclosure and place them in an enclosure with dragons of the same size

Referencing:

Raferty.a, 2002, bearded dragon, ring press books, surrey

R.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragon, Barron's educational series, New York

Darren green, Larson, 2001, keeping bearded dragons, Australian reptile keeper publications, Bendigo Victoria

11.12 Weaning

Because Bearded Dragons are omnivores, they need a balanced diet of meat and vegetable matter. Hatchlings eat mostly small insects. As they grow, they will start to eat more vegetable matter. The diet of a juvenile dragon (2-4 months of age) will consist of approximately 80% insects and 20% greens. Young dragons should be fed 2-3 times daily. If insufficient food is fed, young bearded may nip at the tails and toes of their cage mates.

Reference: Drs foster and smith, 1997-2000, pet education, 29th April 2010, <http://www.peteducation.com/article.cfm?c=17+1796&aid=2730>

12 Acknowledgements

throughout this course my teacher Jackie salkeld has given me some information that I was missing for my husbandry manual and advised me to have a look at the husbandry manual that is similar to mine the shingle back lizard that Andrew titmus has written.

13 References

***Eastern blue tongue lizard, 2010, Australian museum, 22.april.2010**

australianmuseum.net.au

*Zach, 2010, genusinformation, Zach, 22nd, June, 2010, www.bluetongueskinks.net

*turner.g, 2001, keeping bluetongue lizards, Australian reptile keeper publications, Bendigo, Victoria

*blue tongue skinks, 2000, Melissa Kaplan, 22.3.2010, <http://www.anapsid.org/bluetongue.html>

*blue tongue skinks, 2000, Zach Griffiths, 22.4.2010, <http://blue.tongueskinks.net/blue.html>

*blue tongue lizards, nd, Bankstown city of progress, 22.4.2010, <http://www.bankstown.nsw.gov.au/wdal/pdfcreate.aspx?dn=uzQobFpB2jw%3d>

*blue tongue skink, nd, lee Richardson, 22.4.2010 <http://www.garden-city.org/zoo/animal.html>

*eastern blue tongue lizard, 2010, sea world, 22.4.2010, <http://www.seaworld.org/animal-info/animal-bytes/animalia/eumetazoa/coelomates/deuterostomes/chordata/craniata/reptilia/squamata/eastern-blue-tongued-skink.html>

*(governor in council, 6, May 2003, Victoria, 30 may 2009, <http://dpi.vic.gov.au/dpi>)

*blue tongue lizard care, 2008, David vella, 9th June 2009, [Http://www.davidvella.com.au/bluetongue_dvella.pdf](http://www.davidvella.com.au/bluetongue_dvella.pdf)

*miss j.salkeld, cert 3 captive animals teacher, Richmond TAFE has indicated 2009 (pers.com, 2nd June)

*blue tongues stick out, 2006, Donna Fitzgerald, 9 June 2009

<http://www.captivebred.com/blue%20%20tongue%20article.html>

*keeping blue tongue lizards as pets, 2009, reptilekeepers, 9th June 2009

http://www.mooloolabapets.com.au/html/blue_tongue_skinks.html

Cleaning, disinfecting and sterilizing, 2007, Melissa Kaplan, 9th June 2009,

<http://www.anapsid.org/cleaning.html>

*warratah software, nd, skinks, 9th June, 2009,

http://www.waratahsoftware.com.au/wp_lizards_skinks.html

*Jackie burn, 1998-2005, blue tongued skink, M.A. Clark, 14th June 2009,

<http://whozoo.org/students/juaben/bluetngsk.html>

*profile-blue tongue lizard, 2006, blue tongue lizard, 14th June 2009,

<http://www.zoo.utas.edu.au/tfprofiles/tasanimals/bluetongue2.html>

*blue tongue skink, 2005, exotic-pets.co.au, 17.6.2009,

www.exoticpets.co.uk

*reptile food/suppliments,2006,practicle-webs,17.6.2009,

www.petshop-online.com.au/index.html

*keeping bluetongue lizards in captivity, 2000, dr bob Donnelly, 27.4.2010,

http://petalia.com.au/templates/storytemplate_process.cfm?story_No=371

*handle with care, 2010, rspca, 28.4.2010,

<http://content.www.rspca.org.uk>

*(dpi 2004)

*IATA, 2009, live animals regulation, 36th edition, IATA, Canada

*Barnard, m, 1996, reptile keeper's handbook, Krieger publishing company, Malabar, Florida

*vosjoli,d,1997,lizard keepers handbook,phillipe de vostojsoli,1997,caring for native reptiles,2004,anne fowler,28. April.2010,

<http://www.ntwc.org.au/pdf/caring/%20injured%20reptiles2004.pdf>

*blue tongue lizards, 2007, northern tablelands wildlife carers, 11th September, 2009,
http://www.ntwc.org.au/www.revet.co.za/heal_bio-security_quarantine.php

*blue tongue lizards, 2000, Aussie pythons and snakes, 11th September 2009,
<http://www.aussiepythons.com>

*care of Australian reptiles in captivity, john weigel, reptile keepers association, gosford,
nsw,

*the Australian blue tongue lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tongue-lizard.html>

*bluetongues, unknown, 20th November 2009,
www.convictcreations.com

*margreta.wissman, 2006, reptile reproduction from egg to adult, exotic pet vet.net, 29th
April 2010,
<http://www.expticpetvet.net/reptile/rerepro.html>

*Darren green, Larson, 2001, keeping bearded dragons, Australian reptile keeper
publications, Bendigo Victoria

*r.d Bartlett and Patricia Bartlett, 1999, reptile keeper guides bearded dragons, Australian
reptile keeper publications, Bendigo Victoria

*animal world, 2009, bearded dragon, avid brough, 20th April 2010,
[http://animalword.com/encyclo/reptiles/lizards_agamids/beardeddragon\(inland\).php](http://animalword.com/encyclo/reptiles/lizards_agamids/beardeddragon(inland).php)

*drs foster and snith, 1997-2000, peteducation, 29th April 2010,
<http://www.peteducation.com/article.cfm?c=17+1796&aid=2730>

Mr. Brad walker, teacher at Richmond TAFE, has indicated, (2010, 11th of June) to have
a look at the arazpa website for the EA category and species coordinator and studbook
holder for this species.

Harvey rob, 1990, practical incubation, Rob Harvey, farnham, surry

14 Bibliographies

Books:

Jackson, S.M. (2002) *Standardizing captive-management manuals: guidelines for
terrestrial vertebrates* revised, in *International Zoo Yearbook* (2003) 38: 229-243,
The Zoological Society of London, London.

R.D Bartlett & Patricia Bartlett, 1997, lizard care from a to z, R.DBartlett and Patricia Bartlett, Hauppauge, New York

Hackbarth, Rolf, 1990, reptile diseases, franch'she verlagshandlung, Germany

Cronin, Leonard, 2001, Australian reptiles and amphibians, Leonard Cronin, Annandale, nsw

Turner, grant, 2001, keeping blue tongue lizards, Australian reptile keeper publications, Bendigo Vic

Harold f.heatwole & Janet Taylor, 1987, ecology of reptiles, surrey Beatty and sons, chipping Norton, nsw

R.D Bartlett & Patricia Bartlett, 1999, reptile keepers guides bearded dragons, R.D Bartlett & Patricia Bartlett, Hauppauge, NY

Aidan Raftery, 2002, bearded dragon, ringpress books, dorking, surrey

Darren green &ty Larson, 2001, keeping bearded dragons, Australian reptile keepers publications, Bendigo mc Vic

Australasian regional association of zoological parks and aquaria, 2007, regional census & plan, 17th edition, Australasian regional association of zoological parks and aquaria, Mossman, nsw

IATA, 2009, live animals regulation, 36th edition, IATA, Canada

Harvey rob, 1990, practical incubation, Rob Harvey, farnham, surry

Internet:

*Zach, 2010, genus information, Zach, 22nd, June, 2010,
www.bluetongueskinks.net

*blue tongue skinks, 2000, Melissa Kaplan, 22.3.2010,
<http://www.anapsid.org/bluetongue.html>

*blue tongue skinks, 2000, Melissa Kaplan, 22.3.2010,
<http://www.anapsid.org/bluetongue.html>

*blue tongue skinks, 2000, Zach Griffiths, 22.4.2010,
<http://blue.tongueskinks.net/blue.html>

*blue tongue lizards, nd, Banks town city of progress, 22.4.2010,
<http://www.bankstown.nsw.gov.au/wdal/pdfcreate.aspx?dn=uzQobFpB2jw%3d>

*blue tongue skink, nd, lee Richardson, 22.4.2010
<http://www.garden-city.org/zoo/animal.html>

*eastern blue tongue lizard, 2010, sea world, 22.4.2010,
<http://www.seaworld.org/animal-info/animal-bytes/animalia/eumetazoa/coelomates/deuterostomes/chordata/craniata/reptilia/squamata/eastern-blue-tongued-skink.html>

*(governor in council, 6, May 2003, Victoria, 30 may 2009,
<http://dpi.vic.gov.au/dpi>)

*blue tongue lizard care, 2008, David vella, 9th June 2009,
[Http://www.davidvella.com.au/bluetongue_dvella.pdf](http://www.davidvella.com.au/bluetongue_dvella.pdf)

*blue tongues stick out, 2006, Donna Fitzgerald, 9 June 2009
<http://www.captivebred.com/blue%20tongue%20article.html>

*keeping blue tongue lizards as pets, 2009, reptile keepers, 9th june2009
http://www.mooloolabapets.com.au/html/blue_tongue_skinks.html
Cleaning, disinfecting and sterilizing, 2007, Melissa Kaplan, 9th June 2009,
<http://www.anapsid.org/cleaning.html>

*warratah software, nd, skinks, 9th June, 2009,

http://www.waratahsoftware.com.au/wp_lizards_skinks.html

*Jackie burn, 1998-2005, blue tongued skink, M.A. Clark, 14th June 2009,
<http://whozoo.org/students/juaben/bluetngsk.html>

*profile-blue tongue lizard, 2006, blue tongue lizard, 14th June 2009,
<http://www.zoo.utas.edu.au/tfprofiles/tasanimals/bluetongue2.html>

*blue tongue skink, 2005, exotic-pets.co.au, 17.6.2009,
www.exoticpets.co.uk

*reptile food/suppliments,2006,practicle-webs,17.6.2009,
www.petshop-online.com.au/index.html

*keeping bluetongue lizards in captivity, 2000, dr bob Donnelly, 27.4.2010,
http://petalia.com.au/templates/storytemplate_process.cfm?story_No=371

*handle with care, 2010, rspca, 28.4.2010,
<http://content.www.rspca.org.uk>

*vosjoli,d,1997,lizard keepers handbook,phillipe de vostojsoli,1997,caring for native reptiles,2004,anne fowler,28. April.2010,
<http://www.ntwc.org.au/pdf/caring/%20injured%20reptiles2004.pdf>

*blue tongue lizards, 2007, northern tablelands wildlife carers, 11th September, 2009,
http://www.ntwc.org.au/www.revet.co.za/heal_bio-security_quarantine.php

*blue tongue lizards, 2000, Aussie pythons and snakes, 11th September 2009,
<http://www.aussiepythons.com>

*care of Australian reptiles in captivity, john weigel, reptile keepers association, gosford, nsw,

*the Australian blue tongue lizard, 2005, birgit bradtke, 20th November 2009,
<http://www.outback-australia-travel-secrets.com/blue-tongue-lizard.html>

*bluetongues, unknown, 20th November 2009,
www.convictcreations.com

*margreta.wissman, 2006, reptile reproduction from egg to adult, exotic pet vet.net, 29th April 2010,
<http://www.expticpetvet.net/reptile/rerepro.html>

*animal world, 2009, bearded dragon, avid bough, 20th April 2010,
[http://animalword.com/encyclo/reptiles/lizards_agamids/beardeddragon\(inland\).php](http://animalword.com/encyclo/reptiles/lizards_agamids/beardeddragon(inland).php)

*drs foster and smith, 1997-2000, peteducation, 29th April 2010,
<http://www.peteducation.com/article.cfm?c=17+1796&aid=2730>

Journals:

Physiological and behavioral effects of handling and restraint in the ball python (*Python regius*) and the blue-tongued skink (*Tiliqua scincoides*)

Michael D. Kreger, Joy A. Mench

Applied Animal Behaviour Science - December 1993 (Vol. 38, Issue 3, Pages 323-336)

Tongue Display by the Common Bluetongue (*Tiliqua scincoides*) Reptilia, Lacertilia, Scincidae)

Charles C. Carpenter and James B. Murphy

Journal of Herpetology, Vol. 12, No. 3 (Jul. 24, 1978), pp. 428-429

(article consists of 2 pages)

Published by: [Society for the Study of Amphibians and Reptiles](#)

Stable URL: <http://www.jstor.org/stable/1563633>

15 Glossary

P.P.E: personal protective equipment

ZOONOSES: any infectious disease that can be transmitted from other vertebrate animals to humans

TERRESTRIAL: animals that live on land as opposed to living in water.

DIURNAL: animals that is active of a day time and sleep during the night time.

OMNIVOUROUS: animals that eat both plant and animal as their main food source.

VIVIPAROUS: reproduction inside the body of the mother; that is, live birth.

AMSP: Australasian species management plan.

TAG: taxon advisory group.

PROBING: a way to tell if the reptile is male or female.

HEMIPENES: Snakes and lizards (saurian) have a bi-lobed reproductive organ called the hemipene. This organ is tucked away in the tail, emerging from the body through the vent, generally during mating when it is inserted into the female's vent.

ISIS: ISIS software has long been recognized as the world standard best practice for zoological record-keeping.

INGUINAL: The area on the underside in front of the hind legs. The "groin" area

THERMOREGULATION: Lizards are cold-blooded and do not produce an internal temperature. They have to regulate their body temperature using their external environment (the sun), and this is referred to as thermoregulation.

ENDOPARISITE: These are a group of parasites that pose the greatest health risk to captive reptiles. These parasites may affect the internal organs of the host and in a captive environment where an intermediate host is not present may multiply and re-infect the host causing very serious complications.

ECTOPARISITE: parasites that are found outside the reptiles body e.g. mites and ticks

METABOLIC BONE DISEASE: Metabolic bone disease (also called fibrous osteodystrophy) is caused by a poor diet and/or a lack of exposure to ultraviolet light. This disease causes bone weakness and malformation.

GASTROENTERITIS: is inflammation of the gastrointestinal tract, involving both the stomach and the small intestine and resulting in acute diarrhea. It can be transferred by contact with contaminated food and water.

SALMONELLAOSIS: is an infection with *Salmonella* bacteria. Most people who get infected with *Salmonella* develop diarrhea, fever, vomiting, and abdominal cramps, and 8 to 72 hours after infection.

16 Appendix

Pet Supplies Australia Pty Ltd
P.O. Box 39
Milperra NSW 2214

Ph: (02) 9771 5223
Fax: (02) 9771 5229

<http://www.ultimatereptiles.com.au/index.html>

Reptiles Australia

Web: www.reptilesaustralia.com.au

Goulburn Valley Reptile Supplies

Web: www.goulburnvalleyreptilesupplies.com.au

Central reptile & pet shop

Web: www.reptilepets.com.au

Totally Reptiles

Web: www.totallyreptiles.com.au

Reptapets Australia

Pails for Scales

Web: www.pailsforscales.com.au

Parker's Enclosures

Web: [customreptileenclosures.com/index.html?channel_ids=,](http://customreptileenclosures.com/index.html?channel_ids=)

DixiLizards

Web: www.lizards.dixiglen.com.au

Manufacturer's details for zoo med repetitive:

Name: zoo med repetitive 58.7g

Stock code: 9761210362

Address: cnr of Carrington ave & talbragar st

Dubbo, nsw, 2830

Phone (02)6881883

Email: www.outbackoceans.com.au

References:

Reptile food/supplements, 2006, practical-webs, 17.6.2009

Repti-Cal Description

Repti-Cal is a natural phosphorus free, calcium and vitamin D3 supplement for all reptiles and amphibians. Calcium deficiency is a major dietary problem with captive reptiles and amphibians. Maintaining a correct calcium: phosphorous (Ca: P) ratio in the diet of 1:1 to 1.5:1 is equally important nutritionally as adequate calcium intake. Commonly used food sources such as Crickets, Meal Worms and Mice contain high levels of Phosphorous and low levels of calcium. Repti-Cal assists in balancing the Ca: P ratio by providing a natural phosphorous free calcium source together with vitamin D3 to assist in absorption from the intestinal tract. Repti-Cal is manufactured from natural oyster shell ground to an ultrafine powder with added vitamin D3.

Ingredients

350mg/g Calcium (as Calcium Carbonate); 70 iu/g Cholecalciferol (Vitamin D3)

Direction of Use

Mix with vegetables, fruits and pastes at approximately 1/2 Tablespoon (9g) per 500g of food. Before feeding with insects: Place Repti-Cal in a plastic bag, add insects and shake slowly until insects are completely coated.

Size

220gram

F10 manufacturer's details and MSDS:

F10SC VETERINARY DISINFECTANT PRODUCTS:

F10SC Veterinary Disinfectant (Reg No G 3070, Act 36/1947)
F10SCXD Veterinary Disinfectant/Cleanser (Reg No G 5073, Act 36/1947)
F10 Wipes (Impregnated with F10 solution)

Developed and Manufactured by:

Health and Hygiene (Pty)Ltd
P.O.Box 347
Sunning hill
2157
South Africa

ALL PRODUCTS BASED UPON F10 CORE ACTIVES ([see here for more information on F10 core actives](#))

Performance and speed of kill of F10SC Veterinary Disinfectants

Micro- organism	Dilution	Contact Time
Gram Positive bacteria: e.g. Staphylococcus aureus	1:1000 water	2 minutes
Gram Negative bacteria: e.g. Pseudomonas aeruginosa	1:500 water	2 minutes
Fungi, Yeast, Moulds: e.g. Candida albicans	1:500 water	15 minutes
Fungal spores: e.g. Aspergillus niger	1:250 water	30 minutes
Virus: e.g. Newcastle Disease Virus	1:500 water	10 minutes
Rabies	1:500 water	30 minutes
Infectious Bursal Disease	1:250 water	20 minutes
Parvovirus	1:125 water	30 minutes
Bacterial spores: e.g. Bacillus subtilis spores	1:125 water	30 minutes

F10 Wipes Solution is effective against E. coli, S. aureus, Salmonella typhi, Candida albicans in less than 30 seconds

Testing standards

- * South African Bureau of Standards
- * South African Institute for Medical Research
- * South African Vaccine Producers (Pty) Ltd
- * University of Pretoria, Poultry Reference Laboratory
- * Agricultural Research Council, Veterinary Institute, Onderstepoort

- * Agricultural Research Council, Animal Improvement Institute, Irene
- * Complies with AFNOR standards, as well as EN Standards for chemicals and antiseptics within the EU

Safety

F10SC Veterinary disinfectant products are:

Non-toxic

- * acute oral and dermal LD50 > 5000mg/Kg
- * inhalation - non toxic

Non-irritating

- * Proven in supervised independent field trials
- * score of zero on intact and abraded skin when tested to SABS method 671

Free rinsing

- * complies with (SABS 1593 6.11).

Water insoluble matter content

- * 0,3g/litre (SABS 1593 6.12)

Biodegradable

- * zero hazard rating to EU standards

Non-corrosive

- * passed SABS 1615 after 30 days

Approvals

- * SABS Approval Mark 636 and 639, for Efficacy and Quality Assurance
- * SABS Mark 1828. Chemicals for use in the Food Industry approval to EU Standards
 - * SABS Standards Act 29/1993 Compulsory registration of disinfectants
- * SA, National Department of Agriculture, Stock Remedies Act 36 for surfaces, equipment and air spaces
 - * UK, DEFRA for Diseases of Poultry Order and General Orders.
 - * NZ, MAF approved for food, beverage, farms, and factories.
- * Australia, NRA, TGA, AQIS for surfaces, equipment and air spaces
 - * Uruguay, Min of Ag for surfaces, equipment and air spaces

Material Safety Data Sheet

Product identification

Trade Name:

- * F10SC Veterinary Disinfectant
- * F10SCXD Veterinary Disinfectant/Cleanser
- * F10 Wipes

Product Use:

- * Multi-purpose disinfectant and sterilizer

Chemical type:

- * Quaternary ammonium and biguanidine compounds (5,8%), non-toxic ampholytic surfactants and sequesterants

Suppliers identification

Name: Health and Hygiene (Pty)Ltd
Address: P.O.Box 347, Sunning hill, 2157, South Africa
Telephone No: 011 474 1668
Fax No: 011 474 1670

Hazardous ingredients

Hazardous Ingredients: None

Percentage of weight: N/A

LD50 of Material: > 5000 mg/kg

Physical data

Physical State: Liquid

Appearance and Colour:

F10SC - colorless, slight natural odour
F10SCXD - green, pine fragrance

Evaporation Rate: As Water

Boiling Point: 110° C

Freezing point: -20° C

% Volatile (by weight): NIL

Solubility in water (20° C): Soluble

pH: 7 approximately

Specific gravity: 1.00 @ 20° C

Fire and explosion data
Flammability: Non-Flammable

If Yes, Under Which Conditions: None

Reactivity data
Chemical Stability: Stable

Incompatibility: If mixed with strong alkalis, may neutralize or reduce disinfectant qualities

Hazardous Decomposition Products: If burnt may produce irritating fumes

Toxicological properties

Exposure Route	Degree of Hazard
Skin Contact	Low: Concentrate may act as mild degreasant to sensitive skin
Eye Contact	Low: Will cause irritation but not serious damage
Inhalation Acute	Low: No significant hazard
Inhalation Chronic	Low: No significant hazard
Ingestion	Low: Substantial Ingestion may cause irritation to mouth, throat and digestive tract

Preventative measures
Personal Protective Equipment: Not required

Eye Protection: Avoid contact with eyes

Leak & Spill Procedure: Soak up onto inert material or may be flushed to drain with copious amounts of water

Handling Procedures: Ensure good industrial hygiene

Storage Requirements: Store between 0° - 30° C in dry conditions

First aid measures
Inhalation: Non-toxic: avoid long term inhalation of neat liquid. Remove to fresh air

Eye Contact: Rinse eyes with water. Seek medical advice if necessary

Skin Contact: Wash affected area with soap and water

Ingestion: DO NOT induce vomiting. Give milk, or water to drink. Seek medical advice where necessary.