

### Natural History / Behaviour

- Marsupials – always check for pouch young (usually have twins – if only one found check carefully for missing young)
- All species are arboreal and nocturnal
- All species have strong home ranges – essential to obtain accurate details of rescue location
- They live in social groups (except Greater Glider)
- They have a gliding membrane from their forearm to hind leg (membrane differs at start/end position for each species)
- Unfurred joeys require regular feeding (every 3-4 hours)
- Adult weight ranges from 1.5 kg (Greater Glider) to 13grams (Feathertail Glider)

### Common Species of South-east Queensland

(\*) Highly specialised species.

Weights are average only and are for sub-adult to adult animals.

Sugar/Krefts Glider	<i>Petaurus breviceps</i>	130 grams
Squirrel Glider	<i>Petaurus norfolcensis</i>	230 grams
Feathertail Glider	<i>Acrobates pygmaeus</i>	13 grams
Central Greater Glider *	<i>Petauroids volans</i>	1500 grams
Yellow-bellied Glider *	<i>Petaurus australis</i>	550 grams

### Basic Rescue Equipment and Emergency Housing

#### Adult / Sub-Adult

- Small carry basket (top-opening) lined with soft towels or small cotton baby blankets; or
- Plastic terrarium or smooth sided ventilated tub lined with small cotton baby blankets
- Small cardboard box or outer pouch placed into carrier to hide in
- Small towel or baby blanket to cover cage
- Cotton pouch and tie
- Leather gloves or small towel for handling/capture

#### Orphaned Joeys

- Warm outer pouch (feather pouch, thick wool or cotton pouch)
- Inner pouches (liners) x 3 (lined within themselves) with tie to prevent escape
- Small plastic carry basket or plastic terrarium lined with small cotton baby blankets
- Heat source: Hot water bottle, instant heat packs, Snugglesafe, electric heat pad or ICU
- Probe thermometer to monitor ambient pouch temperature

Photos: S. Singleton and K. Scott



# OHS Considerations / Zoonoses

## Beware of

- Teeth
- They are great escape artists – ensure housing is very secure (especially important for Feathertail Gliders)

## Known Zoonotic Diseases

- No specific zoonoses

## Handling

### Adults

Grasp the back of the head with your thumb on one side and your forefinger on the other side to avoid being bitten. Hold gently around the body. Support body.

**Note:** Larger species (such as Yellow-bellied Glider and Greater Glider) use method for adult possums – V technique or large towel.

*Photos: CWS*



### Orphans

Hold in the palm of your hand with your other hand securing to prevent them falling or jumping.

*Photo: Corali Philpott*



# Assessment Checklist – Gliders

Clinical Signs	Healthy / Normal	Sick / Injured
<b>Demeanour</b>	<ul style="list-style-type: none"> <li>Bright, alert and looking around</li> <li>Responsive (struggles when handling)</li> <li>Responsive to stimuli (e.g. noises)</li> <li>Conscious</li> <li>Vocalising aggressively</li> <li>Tries to bite</li> <li>Tried to flee capture</li> </ul>	<ul style="list-style-type: none"> <li>Quiet / depressed</li> <li>Distressed</li> <li>Reduced response when handled</li> <li>Not responding to stimuli</li> <li>Unconscious</li> <li>Teeth grinding</li> <li>Crying (orphans)</li> </ul> <p><i>(Indicative of shock, dehydration, injury)</i></p>
<b>Mobility / Limbs / membranes</b>	<ul style="list-style-type: none"> <li>Able to move all limbs</li> <li>Membranes intact and extending fully</li> <li>No bruising or swelling</li> <li>No obvious abnormalities or lack of symmetry</li> </ul>	<ul style="list-style-type: none"> <li>Abnormalities in movement (e.g. only using front legs, dragging a limb, falling over, swaying)</li> <li>Head tilted to one side</li> <li>Paralysis (<i>trauma</i>)</li> <li>Damage to membrane (<i>trauma</i>)</li> </ul> <p><i>(Indicative of trauma related injury)</i></p>
<b>Body Condition</b>	<ul style="list-style-type: none"> <li>Good body condition</li> <li>Good muscle tone</li> <li>Fur in good condition</li> <li>Non-odorous smell</li> </ul>	<ul style="list-style-type: none"> <li>Open wounds (<i>cat attack / trauma</i>)</li> <li>Puncture wounds (<i>cat attack/trauma</i>)</li> <li>Poor body condition (<i>malnourished</i>)</li> <li>Lack of muscle tone (<i>malnourished</i>)</li> <li>Offensive odour (<i>infected wound</i>)</li> <li>Missing fur (<i>trauma</i>)</li> <li>Bruising (<i>trauma</i>)</li> </ul> <p><i>(Indicative of trauma or chronic illness/disease)</i></p>
<b>Breathing</b>	<ul style="list-style-type: none"> <li>Normal (handling may result in increased respiration rate)</li> </ul>	<ul style="list-style-type: none"> <li>Open-mouthed breathing</li> <li>Laboured (noticeable effort to breath)</li> <li>Audible breathing sounds (clicking, ticking, gurgling sounds)</li> <li>Sneezing or coughing</li> <li>Shaking head (<i>possible obstruction or head injury</i>)</li> </ul> <p><i>(Indicative of trauma related injury, poisoning)</i></p>
<b>Head</b>	<ul style="list-style-type: none"> <li>Symmetrical</li> </ul>	<ul style="list-style-type: none"> <li>Abnormal symmetry</li> <li>Indentations</li> <li>Swelling</li> <li>Crepitation</li> <li>Lacerations/abrasions/wounds</li> </ul> <p><i>(Indicative of trauma related injury or dermatitis)</i></p>
<b>Eyes</b>	<ul style="list-style-type: none"> <li>Bright and clear</li> <li>Shiny</li> </ul>	<ul style="list-style-type: none"> <li>Dull (<i>pain/dehydration</i>)</li> <li>Sunken (<i>dehydrated</i>)</li> <li>Closed (<i>pain/dehydration</i>)</li> <li>Protrusion (<i>trauma</i>)</li> <li>Swelling (<i>trauma</i>)</li> <li>Clear fluid (<i>trauma</i>)</li> <li>Nystagmus (<i>head trauma</i>)</li> <li>Unequal pupil(s) (<i>trauma</i>)</li> <li>Unreactive pupil(s) (<i>trauma</i>)</li> <li>Purulent discharge (<i>infection</i>)</li> <li>Missing fur and open wounds (<i>dermatitis</i>)</li> </ul>

## Assessment Checklist – Gliders (continued)

Clinical Signs	Healthy / Normal	Sick / Injured
<b>Nose</b>	<ul style="list-style-type: none"> <li>• Straight</li> <li>• No discharge or bleeding</li> </ul>	<ul style="list-style-type: none"> <li>• Distorted (<i>trauma - fracture</i>)</li> <li>• Blood or other discharge (purulent infection) from nostrils (<i>trauma</i>)</li> <li>• Abrasions (<i>trauma</i>)</li> <li>• Swelling (<i>trauma</i>)</li> </ul>
<b>Mouth</b>	<ul style="list-style-type: none"> <li>• No discharge</li> <li>• Symmetrical</li> <li>• Teeth and tongue undamaged</li> </ul>	<ul style="list-style-type: none"> <li>• Mal-aligned jaw (<i>trauma</i>)</li> <li>• Broken teeth (<i>trauma</i>)</li> <li>• Blood (<i>trauma</i>)</li> <li>• Swelling (<i>trauma</i>)</li> <li>• Crepitation (<i>trauma</i>)</li> <li>• Pale mucous membrane (<i>shock/dehydration</i>)</li> <li>• Slow capillary refill time (<i>shock/dehydration</i>)</li> </ul>
<b>Ears</b>	<ul style="list-style-type: none"> <li>• No discharge</li> </ul>	<ul style="list-style-type: none"> <li>• Blood</li> <li>• Clear fluid</li> </ul> <p>(<i>Indicative of trauma related injury</i>)</p>
<b>Fur</b>	<ul style="list-style-type: none"> <li>• Shiny and in good condition</li> </ul>	<ul style="list-style-type: none"> <li>• Patchy or missing fur (<i>dog/cat attack</i>)</li> <li>• Wet patches of fur (<i>dog/cat attack</i>)</li> <li>• Fungal infections (<i>chronic illness</i>)</li> </ul>
<b>Cloaca (vent) Pouch / Scrotum</b>	<ul style="list-style-type: none"> <li>• Clean</li> <li>• Free from discharge</li> <li>• Penis not protruding</li> </ul>	<ul style="list-style-type: none"> <li>• Blood (<i>trauma</i>)</li> <li>• Lacerations (<i>trauma</i>)</li> <li>• Swelling (<i>trauma</i>)</li> <li>• Pouch – check for joeys</li> <li>• Penis – protruding (<i>trauma</i>)</li> </ul> <p>(<i>Indicative of trauma related injury</i>)</p>
<b>Tail</b>	<ul style="list-style-type: none"> <li>• Straight</li> <li>• Well furred</li> <li>• Missing tail (old injury)</li> </ul>	<ul style="list-style-type: none"> <li>• Swelling</li> <li>• Lack of movement</li> <li>• Missing tail (fresh injury)</li> </ul> <p>(<i>Indicative of trauma related injury</i>)</p>
<b>Parasites</b>	<ul style="list-style-type: none"> <li>• Some ticks may be normal in larger species</li> </ul>	<ul style="list-style-type: none"> <li>• Overabundance of ticks (<i>chronic illness</i>)</li> <li>• Fly blown/maggots (<i>trauma</i>)</li> </ul>

## Assessment Parameters

<b>Vital Signs</b>	Heart Rate	200-300 beats per minute (variable)
	Respiration Rate	16-40 breaths per minute
	Core Body Temperature	35°C – 36.6°C

<b>Preferred Ambient Temperature</b>	Adults and Sub-Adults	28°C
	Orphans – Just furred to furred	28°C - 30°C
	Orphans – Unfurred	32°C

<b>Signs of Stress</b>	<ul style="list-style-type: none"><li>• Vocalisation (Sugar &amp; Squirrel Gliders have a very loud distress call)</li><li>• Biting</li><li>• Urination, defecation</li></ul>
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<b>Signs of Pain</b>	<ul style="list-style-type: none"><li>• Teeth grinding</li><li>• Aggressive behaviour</li><li>• Laying in lateral or dorsal recumbency</li><li>• Self-mutilation</li></ul>	<ul style="list-style-type: none"><li>• Reduced level of alertness</li><li>• Closed eyes</li><li>• Heavy breathing</li><li>• Shaking head</li></ul>
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<b>Signs of Dehydration</b>	<ul style="list-style-type: none"><li>• Dry tacky mucous membranes</li><li>• Dull eyes</li><li>• Sunken eyes</li></ul>	<ul style="list-style-type: none"><li>• Lack of skin elasticity</li><li>• Lethargy</li></ul>
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<b>Assessment of Body Condition</b>	<p><b>Scapula (shoulder blade) and spine</b> – feel for good muscle coverage.</p> <p><b>Temporal region (skull)</b> – feel for good coverage – depression could indicate poor body condition.</p> <p><b>Fur</b> – uniform thick fur, no missing fur</p>
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## Emergency Diet

Do not offer any food or water to an animal suffering from injury (e.g. vehicle hit, dog/cat encounter etc). Injured wildlife must be presented to a veterinarian for treatment before offering food or water. Alternatively, please consult with your relevant Species Coordinator.

### Adults

#### Sugar, Squirrel and Yellow-bellied Gliders:

- **Native vegetation** – with flowers for nectar/pollen and foliage for gleaning tiny arthropods
- **Insects** such as moths, caterpillars, weevils, small spiders
- **Apricot nectar (canned)** – diluted 70:30 with water; or
- **Pure maple syrup** – diluted 50:50 with water
- **Good quality fruit/vegetable mix** (e.g. apple, grapes, rockmelon, raw sweet potato and raw unsalted almonds). Grate apple & raw sweet potato and chop other items into tiny pieces,
- **Fresh water** in a small, shallow bowl

#### Central Greater Glider

- **Eucalypts leaves ONLY** with good quality tip
- **Fresh water** in a shallow bowl

### Orphans

- **Water and Glucodin** (initially for first 2 feeds); then
- **Suitable milk replacer** (Divetelact®, Biolac M100® or Wombaroo Possum Milk Replacer <0.8)
- **Native vegetation** (as for adults) – with flowers for nectar and pollen and foliage for gleaning tiny arthropods

**Note:** Gliders have a high metabolic rate – important that fluids are provided orally or subcutaneously if not self-feeding (both adults and orphans)

# Common Injuries, Diseases and Conditions

## Adults

- **Barb Wire entanglement** (torn/damaged membrane, damage to mouth)
- **Dog or cat attack** (puncture wounds, open wounds, evisceration, internal injuries) **Note:** cat attack injuries often difficult to visualise.

Sugar, Squirrel and Feathertail Gliders – any found on their own in the house, verandah, garage etc are highly likely to have been picked up by a pet dog or cat. These must be treated as a priority with antibiotics to prevent infection. Punctures/bites from cats are extremely difficult to find but usually occur over the back of the neck and chest.

## Orphans

- **Dehydration** – (level dependent upon length of time without maternal nutrition)
- **Hypothermia** (particularly unfurred joeys and in colder months)
- **Hypoglycaemia**
- **Cat attack** (puncture wounds, internal bleeding)
- **Wounds** (associated with barb wire injuries or dog/cat attack)

## Drug Administration (preferred routes)

<b>Oral</b>	Adults: Use a 1mL syringe with a 24g or 22g cannula attached Sub-Adults: Use a 1mL syringe with a 24g or 22g cannula attached Orphans: Use a 1mL syringe with a 24g cannula attached
<b>Intramuscular</b>	Cranial and caudal thigh
<b>Subcutaneous</b>	Loose skin at lateral neck/shoulders, side of abdomen or over thigh area (be careful of membrane)
<b>Intravenous</b>	Cephalic

## Euthanasia (preferred methods)

**Euthanasia methods stated to assist veterinary staff.**

**Wildlife volunteers must not euthanise unless trained to do so or they hold appropriate approvals.**

- Injection of sodium pentobarbitone (Lethabarb):
  - Intravenous
  - Intracardiac (must be anaesthetised first)
  - Intraperitoneal (dilute with water 50:50)
- Blunt force trauma to the head (small unfurred joeys only) – **only if trained to do so**

## Suggested Drugs and Dose Rates

This information is provided for **VETERINARY USE ONLY** to assist veterinary staff with the **initial assessment** and **emergency treatment** of sick, injured and orphaned wildlife. Suggested drugs and doses are those commonly used by the wildlife hospitals in South-east Queensland and are for routine treatment only. Recommendations may vary between individual veterinarians. Culture and sensitivity results would indicate the most appropriate antibiotic regime. Most drugs are used off-label.

For more information see 'Current Therapy in Medicine of Australian Mammals' by Vogelnest and Portas (2019).

### Anaesthetic

Drug	Composition	Dose Rates
Isoflurane ® **	Isoflurane 100%	5% for induction and 2-3% for maintenance with oxygen flow rate of 1-2 litres per minute
Alfaxan CD RTU ®	Alphaxalone	3 to 5mg/kg (IM)
Pamlin ®	Diazepam	0.5 to 1mg/kg (IM)

\*\* Extreme caution needed with Greater Gliders

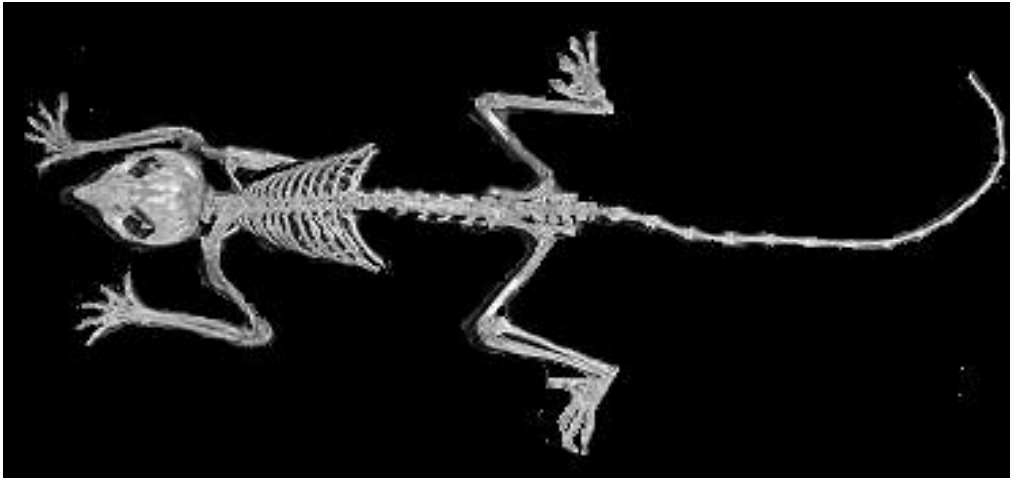
### Analgesic

Drug	Composition	Dose Rates
Methone ®	Methadone Hydrochloride	0.3 to 0.5 mg/kg - 4 to 6 hourly (SC)
Temgesic ®	Buprenorphine Hydrochloride	0.01mg/kg - 8 to 12 hourly (SC)
Rimadyl ®	Carprofen	<b>Day 1</b> - 4mg/kg SID (SC) <b>Days 2 – 5</b> - 2mg/kg SID (SC)
Metacam ®	Meloxicam	<b>Day 1</b> - 0.2mg/kg SID (SC or PO) <b>Days 2 – 5</b> - 0.1mg/kg SID (SC or PO)
Painstop ®	Paracetamol 24mg/mL Codeine 1mg/mL	15mg/kg of Paracetamol component - 8 hourly (PO)
Infant Panadol Drops® (1 month to 2 years)	Paracetamol 100mg/mL	15mg/kg - 4-6 hourly (PO)

### Antibiotics

Drug	Composition	Dose Rates
Clavulox® Augmentin ® Amoxyclav ®	Clavulanic acid 35mg/mL Amoxicillin 140mg/mL	12.5 – 15 mg/kg combined drugs SID (SC or IM) or BID (PO)
Baytril ®	Enrofloxacin	5 to 10mg/kg SID (PO) or (SC or IM) diluted with sterile water)

**Note:** Oral antibiotics should be avoided in Greater Gliders due to high risk of caecal dysbiosis and subsequent bloating. Antibiotics should be administered via injection only.



Above: Skeletal structure of the Sugar Glider  
Source: Art by Evolution –[www.artbyevolution.com](http://www.artbyevolution.com)

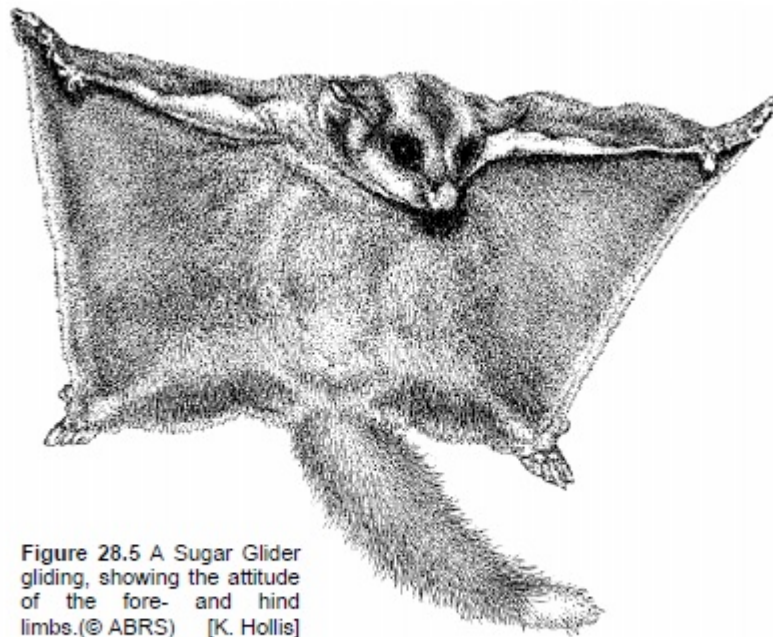


Figure 28.5 A Sugar Glider gliding, showing the attitude of the fore- and hind limbs. (© ABRS) [K. Hollis]

Source: Fauna of Australia (McKay)



# Common Species of South-east Queensland

## Sugar Glider

- Shorter, usually more pug-like face than Squirrel Gliders
- Tail bushy, same thickness from base to tip, may have a white tip (not always)
- Fur grey above, cream under, dark stripe running from between eyes across head and partially down back
- Gliding membrane from wrist to ankle
- Average adult weight usually less than 150g



## Squirrel Glider

- Longer, more pointed face than Sugar Gliders
- Long, fluffy tail that tapers from a wide base to the tip
- Fur grey above, cream under belly, dark stripe running from between the eyes across head and some distance down the back
- Gliding membrane wrist to ankle
- Average weight 230g – 260g



## Yellow-bellied Glider

- Similar in appearance to brushtail possum but smaller in size
- Gliding membrane from wrist to ankle
- Grey-brown fur with cream to rust coloured under belly
- Average weight 450g – 700g



## Greater Glider

- Very fluffy, large ears
- Colour varies from cream to black
- Gliding membrane runs from elbow to ankle
- Tail extremely long
- Adults average 1kg - 1.2 kg



## Feathertail Glider

- Size of a small mouse
- Fur grey-brown, lighter underneath
- Featherlike tail with fine fur above and below and longer, stiffer fur on each side
- Gliding membrane from just above wrist to above ankle
- Adult weight averages 10g – 15g



Photos: A Mutton, EM Hanger, S Singleton