

## **NEW\_007 Husbandry of Fat-tailed Dunnarts**

### **I. OBJECTIVE**

To describe the method of completing husbandry tasks for Fat-tailed Dunnarts (FTD) at the Hidden Vale Wildlife Centre (HVWC).

### **II. COMMENTS / RECOMMENDATIONS**

1. Handlers must be sufficiently trained prior to starting work on the FTD.
2. Handlers must wash hands thoroughly before and after handling animals.
3. Access to an appropriate first aid kit and/or medical advice in case of injury is provided.
4. PPE use is essential when completing these tasks. All FTD procedures must be conducted whilst wearing disposable gloves.
5. All accidents, injury or near misses are to be reported immediately to the Centre Manager and recorded on a UQ OHS Incident Report Form.
6. Volunteers, staff and researchers must wear covered in shoes when working in animal areas.
7. Dunnarts should not be held by the tail.
8. If bitten, handlers must not pull away, as this may cause injury to the animal or handler. Handlers should wait for the dunnart to release its grasp, this can be encouraged by blowing a short sharp puff of air at the dunnart's face.

### **Part A – Handling**

### **III. EQUIPMENT**

1. Disposable gloves (must fit well to ensure dexterity while handling).

### **IV. PROCEDURE**

#### **Capture**

1. In one movement, swiftly place the palm of your hand over the dunnart.
2. Scoop and hold the dunnart in your palm.
3. Place the forefinger of the same hand under the chin to hold the head upwards (see IX Reference Information: Figure 1).

#### **Pouch checks**

1. Follow steps 1-3 in "Capture" procedure.
2. Use the remaining fingers on the hand holding the dunnart to move hind legs out of the way.
4. Use the thumb and forefinger of the opposite hand to open and check inside the pouch (see IX Reference Information: Figure 1).

#### **Scruffing**

1. Run the forefinger and thumb along the back of the body towards the head.
2. Continue down the shoulder blades towards the ventral surface of the dunnart.
3. Beginning at the front of the shoulder, draw the skin back gently.
4. Hold the drawn back skin firmly but gently at the base of the neck to complete the scruff hold (see IX Reference Information: Figure 2).
5. The skin around the face and neck will appear tight.
6. Ensure the animal can breathe comfortably, the chest cavity should be able to expand normally - adjust your grip if necessary.

#### **Ear notching**

1. Wipe ear notching instrument with an alcohol wipe to clean.
2. Follow steps 1-3 in "Capture" procedure.
3. Use other hand to position the ear for notching (see IX Reference Information: Figure 3).
4. Position ear notcher on either side of the ear, and in one swift movement press down. Tissue sample may be kept for research purposes (e.g. genetic analysis).

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## Part B – Husbandry

### V. EQUIPMENT (Husbandry)

1. Disposable gloves (must fit well to ensure dexterity while handling)
2. Dunnart feed (see FTD room whiteboard)
3. Live food
4. Drinking water and dispensers
5. FTD furniture
6. Clean cages and lids
7. Substrate
8. Sieve
9. Designated scrubbing brush
10. Detergent
11. Hot water
12. F10 disinfectant (1:250) [preferred] or Avicare (1:50)

### VI. PROCEDURE (Husbandry)

#### Daily – Non-maternity

1. Ensure all dunnarts are present and healthy.
2. Collect scattered food from enclosure and place back into food bowl.
3. Remove wet food leftover from previous day such as mince, egg, apple and mealworms for hygiene purposes.
4. Check for leftover mealworms under furniture.
5. Discard previous day's water, rinse, and refill with fresh water.
6. If necessary, change/replace soiled furniture.
7. Top the water bottle up as required and check to make sure the water bottle is working. Water bottles are cleaned and disinfected once a month.
8. Feed dunnarts (see Part C: VIII. Procedure – Feeding).
9. Replace lid and ensure it clicks into place securely to ensure the ventilation system will work correctly.
10. Mark one side of the cage with a whiteboard marker to indicate that the enclosure has been cleaned and fed.
11. Clean all soiled furniture/cage items in hot water with detergent and designated scrubbing brush, rinse and stack to dry.
12. Wipe down all surfaces with F10 disinfectant.
13. Check and then clean the whiteboard marker off each cage to ensure all animals have been cleaned/fed.

#### Daily - Maternity

1. Complete steps 1-10 as above. However, avoid changing nest box and toilet roll/egg carton unless absolutely necessary, to retain the animal's scent and minimise disturbance.
2. Remove all faeces, spot clean dirty substrate and replace with fresh substrate.
3. Count young if possible and record on maternity card.
4. If young are visible, increase mealworms as per whiteboard instructions to ensure the FTD's dietary needs are being met.
5. If young are large enough and not attached to the mother's teats, sex young and record on maternity card.

#### Weekly – Full clean and health check

1. Complete full cage change for those cages indicated on checklist in FTD room.
2. Set up a fresh enclosure, use some of the old/unsoiled furniture to keep a familiar smell (see IX Reference Information: Figure 4).
3. Transfer FTDs into a new cage with fresh substrate ~ 2cm deep.
4. When transferring each dunnart to a new cage, complete a health check.
5. If any signs of ill-health or injury are present, fill out a health card (see IX Reference Information: Figure 5) describing the issue and score the animal according to the scoring system attached to the FTD room whiteboard.
6. Clip the health card to the front of the cage (over box/ID cards).

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7. Notify a supervisor and/or veterinarian immediately if the animal is seriously unwell and requires immediate attention or intervention beyond what you can provide.
8. Continue to monitor the issue and record observations daily.
9. Complete daily cleaning procedure.
10. Transfer box /ID cards to new enclosure.

## Part C – Feeding

### VII. EQUIPMENT (Feeding)

1. FTD feed items (see FTD room whiteboard)
2. Live food
3. Enrichment foods (see HVWC prep room whiteboard)

### VIII. PROCEDURE (Feeding)

#### Daily – Non-maternity

1. Sift contents of feed bowl over organics bin, remove any faeces or substrate and replace.
2. Provide 15-20 cat biscuits per animal (supplement what is left in the feed bowl).
3. Provide 4-5 sunflower seeds per animal.
4. Provide mealworms as indicated on box card.
5. Provide 1 small piece of egg or apple per animal per week (see HVWC prep room whiteboard for schedule).
6. Provide 1 mince ball per animal according to the size displayed on the FTD room whiteboard.

#### Daily - Maternity

1. Repeat step 1 above.
2. Provide a full bowl of cat biscuits.
3. Provide ~12 sunflower seeds.
4. Provide mealworms as indicated on box card – make sure this has been updated to meet joey size/number requirements (see FTD room whiteboard for details).
5. Provide 2-3 pieces of egg or apple once per week, or enough for mother and joeys if joey numbers listed.
6. Provide 1 large mince ball as indicated on the FTD room whiteboard, plus a pea-sized ball for each joey once they are large and furred.

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## IX. REFERENCE INFORMATION



**Figure 1.** Restraint hold and pouch check of a Fat-tailed dunnart: make sure the grip around the wind pipe is gentle and the animal is breathing normally.



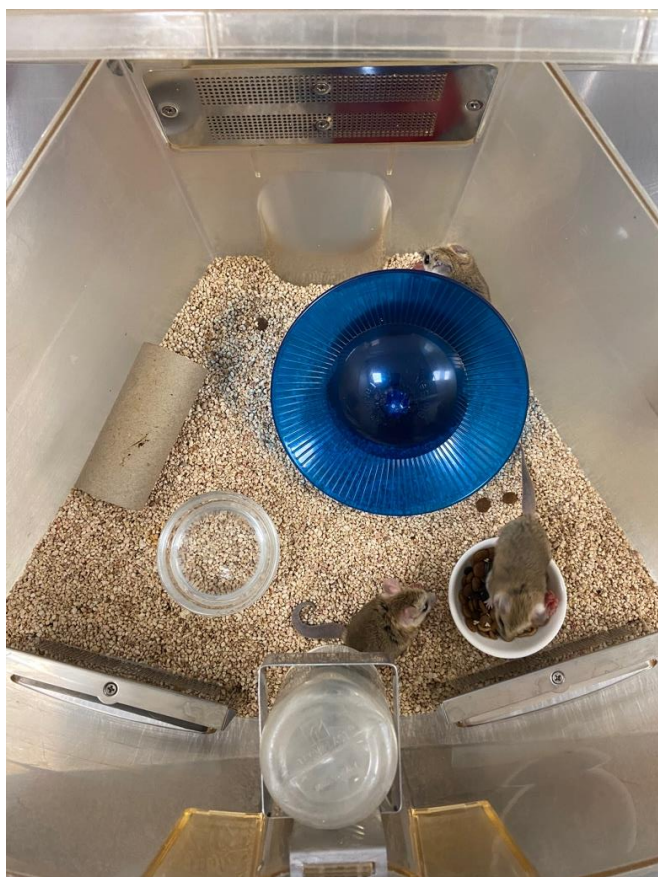
**Figure 2.** Scruff hold of a Fat-tailed dunnart, make sure the dunnart can breathe normally. Always support the rump of the dunnart with your fingers or your other hand.

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**Figure 3.** Position the dunnart and expose the ear ready for ear notching.



**Figure 3.** Optirat enclosure depicting cage set-up: nest box and wheel, water bowl, water bottle, feed bowl and toilet roll.

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 <p style="color: red; text-align: center;"><b>ATTENTION</b></p>	<u>Date</u>	<u>Comment</u>	<u>Score</u>	<u>Staff</u>
<b><u>CHECK ANIMAL FOR ILLNESS/INJURY</u></b>				
<b>ANIMAL ID</b>				
Supervisor notified?		Chief Investigator notified?		
Veterinarian notified?				
Dr Andrew Tribe/Dr Cora Lau				

**Figure 4.** Health care card for Fat-tailed dunnarts with health concerns: fill out the details on the health card if you come across an unwell or injured animal. Make sure you notify appropriate staff (supervisor or veterinarian) depending on the severity of the issue.

## General information

### Cleaning

Maintaining clean enclosures and provision of a good balanced diet for fat-tailed dunnarts is essential to their wellbeing. If handled correctly there is minimal negative impact on the animal during capture and handling. Instruction on correct handling procedures and practice will minimise the risk of injury to the handler and dunnart.

Whilst some individual fat-tailed dunnarts may become accustomed to handling, some will continue to hiss, scratch, bite or actively attack during attempts to handle the animal. However, regular handling of the fat-tailed dunnarts is necessary to maintain hygienic husbandry practices and pouch checking (Lambert & Mills 2006; Jackson 2007).

### Housing

Fat-tailed dunnarts are maintained in captivity in rodent (OptiRat) enclosures. A non-toxic biodegradable corn substrate (1/8") is used to line the bottom of enclosures approximately 2 cm deep. Each cage should contain at least one plastic nest box, the breeder boxes a minimum of two nest boxes. These nest boxes typically measure 10 x 6 cm. Shredded newspaper bedding may be provided in nest boxes for females with pouch young. Enclosures also require a wheel, a toilet roll and a rock. If available, small plastic tub filled with coarse sand (autoclaved prior to use) can be added to enclosures for enrichment.


### Feeding

In the wild they mainly live off an insectivorous diet, favouring crickets, grasshoppers, ants, termites, cockroaches, and weevils, as well as some arthropods such as spiders. When the opportunity arises they may take small frogs, reptiles and even small mammals (Morton 2008).

The captive diet for fat-tailed dunnarts consists of cat biscuits (high quality e.g. Advance or Science Diet), sunflower seeds, live food (e.g. mealworms (larvae, beetles), crickets, woodroaches), mince mix, sunflower seeds, egg and apple. These foods provide nourishment as well as enrichment and encourage natural foraging behaviours (Caton 2007).

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 <p>THE UNIVERSITY OF QUEENSLAND AUSTRALIA CREATE CHANGE</p>	<p>UQ Animal Ethics Committee - Standard Operating Procedure</p> <p><b>NEW_007 Husbandry of Fat-tailed Dunnarts</b></p> <p>Institutional author: <b>UQ Biological Resources</b></p> <p>AEC Reviewed &amp; Approved: 13/10/2020</p>	Version 1
		Page 7 of 8

### Breeding

To facilitate breeding year round fat-tailed dunnarts should be given a false winter every six months (Smith et al. 1978; Bennett et al. 1989). Temperature should be maintained around 16-20 °C (at HVWC: 20 °C) and photoperiod should be 8 hours of light and 16 hours dark. During the 'breeding season' temperature should be maintained around 24 °C and photoperiod should be 16 hours of light and 8 hours dark (Smith et al. 1978; Laird et al. 2014). The false winter photoperiod is particularly important for males in regards to breeding success (Holloway & Geiser 1996).

### Males

Males can be paired at 150 days. Use only one male from a litter to breed, as this reduces inbreeding. Usually the most dominant male will have the largest testes (rule of thumb), he is the most viable male and should be used for breeding. If pairings are unsuccessful after 6-8 weeks, separate the dunnart and pair with other suitable males/females (Smith et al. 1978; Laird et al. 2014). If, after 12-16 weeks, the male has produced no young, it is best to cull the male to avoid passing on poor breeding genes. Similarly females, who fail to produce young after two pairing or ~16 weeks should be culled.


### Females

Females can be paired around 120 days of age. Multiple females can be paired together with one male (max two females and one male per OptiRat enclosures). Those females in oestrus will have white discharge from the cloaca. When pouch young are detected, the female must be moved to the maternity rack or prepared to be sent to the QBI, as per instructions on the box cards.

NOTE: When fat-tailed dunnarts are weaned at 72 days of age, write up a box card and fill out individual ID cards (examples in dunnart room). Each time an animal is paired, separated or moved to maternity, write details on individual ID cards and write new or amend current box card.

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		Page 8 of 8

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