Appendix 1: Quarantine procedures for Tasmanian devils in captivity in Tasmania
Save the Tasmanian devil Program, DPIPWE

These protocols have been developed as general quarantine principles for Tasmanian devils in captivity with particular regard to devil facial tumour disease (DFTD) based on the following principles.

The following quarantine protocols have been developed under the premise that:
1. There is currently no way of determining freedom from exposure to or pre-clinical infection with DFTD.
2. DFTD is spread by bites between devils with the transmission for live tumour cells.
3. There has been no evidence of viral aetiology.
4. Incubation period is estimated as up to 10 months.
5. Survival of tumour cells: tumour cells killed by cleaning of equipment with F10 disinfectant and desiccation.

A risk categorisation document outlines a system detailing the DFTD risk status of captive facilities. This is applicable to all captive devil facilities in Tasmania. Devils are only able to be exported to mainland facilities if at risk category 2 or above. When they are exported at category 2 they must be held in quarantine away from other captive devils for a further 12 months at the mainland facility.

When moving devils between facilities where DFTD is not considered high risk (i.e. biosecure facilities with approved secondary perimeter fences, Australian mainland or overseas facilities), an initial quarantine period of 28 days should be observed. The animals should undergo a veterinary health assessment during that period including faecal parasitological examination and blood collection for haematology and serum biochemistry as well as providing a serum same for storage.

Husbandry Procedures in Quarantine
- Quarantine facilities should be separated from other captive devil facilities by a secure perimeter fence (secondary to pen fences).
- Dedicated clean overalls (or clothing used only in the quarantine facility), scrubbed and disinfected gumboots and new, disposable gloves must be worn prior to entering devil enclosures. Disposable gloves should be used when servicing the pens and handling the animals and these must be changed and disposed of between enclosures. The designated set of protective clothing is not to be worn for other purposes, and is to be stored away from any items used for other animals. Spare sets of protective clothing must be available for visitors.
- To minimise the risk of disease transmission between animals in quarantine, a dedicated set of feeding and cleaning tools (scrubbing brushes, poop scoop) are provided within each enclosure. This equipment must remain within that enclosure and is stored on hooks hanging inside the pens. Regular decontamination of items should occur, at such times the equipment to be cleaned is to be placed in disposable bags before being removed from the pen and taken to the wash bay on-site for disinfecting.
- A clean footbath filled with the approved chemical agent (i.e. F10 SC Veterinary Disinfectant at 1%) must be used prior to entry and on exit to quarantine area.
Footbaths must be kept clean and changed daily and not be exposed to light, so that the decontaminant remains effective. Alternatively dedicated footwear should be used for quarantine enclosures.

- Enclosures must be kept as clean as practicable by picking up all food scraps and faeces daily and regular removal of used bedding material. This material should be disposed of as biowaste.
- Food or enrichment items and bedding material must not be shared between devil enclosures.
- Clean sacks must be used for any handling of devils during veterinary inspection, and may not be shared between animals from different enclosures.
- Close monitoring of the health of all animals is essential. During daily checks take note of any sores, open wounds or other physical injury as well as any behaviour changes. Written records of any health problems detected/treatment undertaken must be kept and veterinary and senior keeping staff notified. Records must include identification (microchip number, house name), daily diet, and details of the nature of illness or injury.
- No other animals are to be housed at the quarantine facility.
- No footwear must be taken onto the site that has been worn in a rural area or while working with any animals, such as cattery/kennels, veterinary clinic, abattoir, other quarantine area etc.
- All waste including disposable gloves, faeces old bedding material etc is to be disposed off as biowaste.
- Carcasses used for food should be field shot game immediately collected after shooting*. Road kill must not be used.
- Bedding material and enrichment items should be held, dry or refrigerated for at least 24 hours prior to be placed in a pen*.

**Personnel Access to site**

- Access to the quarantine facilities should be restricted to authorised and essential personnel only.
- All persons entering the facility must comply with management and staff instruction in relation to hygiene and associated risk-reduction practices and general conduct while on site.
- When visitors (media, contractors) are permitted access to the quarantine facility any equipment brought on site must be clean and dry immediately prior to entry.

*These points relate specifically to facilities in Tasmania
Appendix 2: Risk Categorisation GUIDELINES for RELOCATION of captive Tasmanian devils (Version 4.3, 23rd September)

This classification system has been developed as a guide to help assess the relative risk of infection with Devil Facial Tumour Disease (DFTD) of various groups of captive Tasmanian devils.

To maintain the same risk or to lower the risk of infection of any captive population, the manager should only allow the introduction of Tasmanian devils of the same or lower risk compared to those already held in the captive facility.

Categories are numbered from 1 (lowest risk) to 4 (highest risk) of DFTD infection. The classification is for the whole population, not individual devils. Devils may be moved from one population to a population of higher risk without restriction, however they are then categorised at the risk status of the receiving population. The table below gives guidelines on what devils can be introduced into a population. Special conditions apply to pouch young and juvenile animals.

The categories of risk are based on qualitative assessment, which means that the difference in the probability of risk of DFTD is not necessarily equal between categories.

Road kill or collected carcasses should not be used as a feed source. Carcasses from animals that have been seen live and collected immediately followed killing may be fed to devils. If devils are fed on road kill or collected carcasses they will become category 4.

If devils are taken off site for display or other purposes they can be returned to the Wildlife Park with no impact on its categorisation provided appropriate biosecurity has been maintained. The major consideration will be the level of risk of contact with wild devils or devils of a different status. Removal for less than 12 hours where the animal is kept in a transport crate at all times when not being handled, and is only being handled under the supervision of the keeper, do not present a risk provided there is no contact with other devils. Other circumstances should be considered on a case by case basis. Patting of devils by members of the public is not considered a DFTD risk; however, Category 1 premises in Tasmania require devils to be off display with no public access.

For this document:

Age of young

- Pouch young are unweaned young still in the pouch (less than 500 grams)
- Juveniles are young up to the point of weaning
- Dispersing young are weaned young that have just left the maternal den (under 4kg, normally January-March).

To be eligible for movements described in the document all young should be clinically healthy with no visible bite wounds or skin lesions and not housed with devils other than their mother and littermates.

Where pens are required to have solid walls this means a solid wall that is of a sufficient and appropriate design to prevent devil movement either into or out of the pen over the wall.

In updating this version the following issues were considered:
• No area of Tasmania can now be regarded as free of DFTD and therefore no captive facility is in a disease free area,
• The mounting evidence to indicate the lack of vertical transmission.

**Please note as of September 2013 the time period to progress to the next category has been extended from 12 to 15 months. This is in response to a longer than previously recorded incubation period of 13 months being recorded in a captive devil.**
<table>
<thead>
<tr>
<th>Category</th>
<th>General Characteristics</th>
<th>Biosecurity measures needed to maintain classification and progress to higher classification.</th>
<th>Examples</th>
</tr>
</thead>
</table>
| 1 (very low) | Very low disease risk | Quarantine level biosecurity requirements:  
- Pens with high solid fence and burrow proof base/foundations;  
- Secure perimeter fence (Tasmania only)  
- In Tasmania - no public access and off display;  
- High level biosecurity practices in place (outlined below table).  
- No contact with wild devils or devils of higher risks*.  
For Australian mainland captive insurance populations – can be on display with no specific quarantine requirements except for no contact with devils of higher risks.  
*Except in the instance of joeys removed from the pouch of a disease free female. |  
- Dispersing young collected from wild population believed to be free of disease that have been held in quarantine for at least 15 months  
- Category 2 animals that have been held in quarantine conditions for at least 15 months.  
- Most Australian mainland captive populations  
- Orphaned devils removed as pouch young from the pouches of mothers that are free of signs of disease and hand reared under secure conditions (perimeter fence in place) with animals of equivalent status.  
N.B. Sucking young may not be transported to the Australian mainland from Tasmania. |
| 2 (low) | Low disease risk | Quarantine level biosecurity requirements (must have been in place for the past 15 months):  
As above, EXCEPT  
- Devils can be on display. Contact with the public (e.g. patting) is permitted but the public should not be allowed access to the pens. |  
- Dispersing young taken from a wild population in an area of minimal risk, i.e. NW.  
- Juvenile (i.e. weaning/dispersal age) taken from a Category 3 captive population  
- Animals taken as juveniles from diseased or suspect mothers that have been in captivity (maintained under Category 2 conditions) since weaning (have not had contact with wild devils or suspect devils) for at least 15 months.  
- Orphaned devils removed from pouches of diseased or suspected diseased mothers, hand reared and kept under secure conditions (perimeter fence in place) with animals of equivalent status. |
| 3 (medium) | Established captive populations | Captive populations with solid devil proof pens but no secure perimeter fence.  
Appropriate biosecurity practices are in place.  
No contact with wild devils or devils of higher risks. |  
- All captive animals maintained in captivity without the secure perimeter fence and without contact* with DFTD infected animals,  
- Juvenile devils removed from diseased females at weaning**,  
- Most captive populations in Tasmania |

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<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Description</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 (high)</td>
<td>Disease suspected or confirmed in the population.</td>
<td></td>
</tr>
</tbody>
</table>

**Diseased devils are to be removed from public display and isolated from other devils.**
For the facilities to progress to Category 3 the following is required:
- All diseased devils are removed;
- A biosecurity plan is developed with DPIPWE. This will include measures to progress the park to category 3, including all pens to have solid walls and appropriate biosecurity practices, physical examination of all devils on site.
- Infected pens are de-stocked, cleaned (with appropriate disinfectants) and left empty for one (1) month prior to restocking;
- All high-risk (in contact or from same source as diseased animal) devils identified
- All suspect DFTD lesions reported to STTDP vets, biopsied and sent to DPIPWE, Animal Health Laboratories (AHL), Mt Pleasant, Launceston;
- Continued monitoring and liaison with STTDP. All dead devils to be subject to PM examination and any suspect lesions sampled and sent to DPIPWE, AHL
- Recommended that high-risk animals are examined 6 months post exposure for DFTD; and
- One (1) year after removal of infected devils any remaining high risk devils to be examined under general anaesthetic, all other devils to be physically examined. If all found free of disease the site can progress to category 3.

* Except in the case of orphans removed as juveniles from a DFTD infected female
** To be Category 3, juveniles from DFTD mothers should be removed when they reach 2 kg and have assisted weaning. If a juvenile devil is greater than 3kg at the time it is removed from its mother it will be considered risk category 4.

- History of confirmed disease in one or more animals of a population.
- A facility that has received devil(s) from an infected facility after the time infection is believed to have occurred in the source facility.
- Adult wild devils captured and kept under secure conditions for less than 15 months.
- Devils maintained in pens which do not have complete solid walls in premises without a secure perimeter fence.
Appendix 3: Example of a diet schedule for captive Tasmanian Devils in intensively managed facilities and Free Range Enclosures (FRE)

<table>
<thead>
<tr>
<th>Species</th>
<th>Frequency</th>
<th>% diet</th>
<th>Intensive</th>
<th>FREs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wallaby</td>
<td>11 feeds per month</td>
<td>39%</td>
<td>Whole carcass feed once per week</td>
<td>At least 50% carcass feeds</td>
</tr>
<tr>
<td>Brushtail Possum</td>
<td>5 feeds per month</td>
<td>18%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB When available substitute with Common Ringtail Possum, Wombat and/or Echidna</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish/Crayfish</td>
<td>1 feed per month</td>
<td>3.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rabbit, Rat, Lamb or Beef</td>
<td>1 feed per month</td>
<td>3.5%</td>
<td>Pieces or whole carcass</td>
<td>Whole carcasses</td>
</tr>
<tr>
<td>Poultry (day old chicks, chickens, duck and or quail)</td>
<td>10 feeds per month</td>
<td>36%</td>
<td>Whole carcasses</td>
<td>Whole carcasses</td>
</tr>
<tr>
<td>NB When available substitute with native birds (ie swan, parrots, native-hen, seabirds)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplementary</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other birds</td>
<td>1 shearwater per week per pen when available</td>
<td></td>
<td>Reduce weight from base diet</td>
<td>Additional to base diet</td>
</tr>
<tr>
<td>Reptiles (whole)</td>
<td>As collected fresh</td>
<td></td>
<td>Reduce weight from base diet</td>
<td>Additional to base diet</td>
</tr>
<tr>
<td>Eggs</td>
<td>2 eggs per month</td>
<td></td>
<td>Additional to base diet</td>
<td>Additional to base diet</td>
</tr>
<tr>
<td>Insects (crickets and cockroaches)</td>
<td>Enrichment when available</td>
<td></td>
<td>Additional to base diet</td>
<td>Additional to base diet</td>
</tr>
<tr>
<td>Marine mammals (seal and whale)</td>
<td>Enrichment when available</td>
<td></td>
<td>Additional to base diet</td>
<td>Additional to base diet</td>
</tr>
<tr>
<td>Skin, blubber and bone</td>
<td></td>
<td></td>
<td></td>
<td></td>
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