Feral Cat Baiting Prescription

To reference this prescription please use: Department of Biodiversity Conservation and Attractions, Conservation and Ecosystem Management Division. (2018) *Feral Cat Baiting Prescription*.

Poison baiting is recognised as the most effective and efficient method for controlling feral cats on a broad scale level in Western Australia. The implementation of an annual baiting strategy can provide for the effective and sustained control of feral cats at the landscape level if the baiting prescription is followed. Failure to adhere to the baiting prescription may reduce baiting efficacy. Prior to the implementation of a baiting program, a proposal of the program and conservation benefits must be submitted to the Feral Cat Baiting Technical Committee. Additionally, a Department of Biodiversity, Conservation and Attractions *'1080 Risk Assessment and Approval*' must be conducted prior to any baiting and all conditions identified through the approval process adhered to.

The following are critical to the outcome of feral cat baiting programs: 1) baiting density and bait encounter; 2) the abundance of prey items; and 3) weather conditions at the time of baiting.

1) Baiting density and bait encounter

Cats, despite being opportunistic predators, will only consume a food item if they are hungry. Therefore, if a cat encounters a bait when not hungry it may not be consumed regardless of the acceptability of the bait. For feral cat baiting programs to be efficient and cost-effective, baits must be delivered at a level that maximises their uptake by feral cats but minimises the number of baits required which will also minimise the potential risk posed to non-target species.

Prior to being laid, feral cat baits are thawed and placed in direct sunlight, usually on racks to keep them off the ground. This process, termed 'sweating', causes the oils and lipid-soluble digest material to exude from the surface of the bait. All feral cat baits are sprayed, during the sweating process, with an ant deterrent compound (Coopex®) at a concentration of 12.5 g l^{-1} as per the manufacturer's instructions. This process is aimed at preventing bait degradation by ant attack, which may also deter bait acceptance by feral cats because of the physical presence of ants on and around the bait medium (Algar and Burrows 2004; Algar *et al*. 2007).

Aerial baiting

The prescription for aerial baiting campaigns requires the deployment of 50 baits/km^2 along flight lines 1 km apart (Algar and Burrows 2004). A dedicated baiting aircraft is used to deploy the baits at previously designated bait drop points. The baiting aircraft flies at 160 kt and 500 ft (Above Ground Level) and a GPS point is recorded on the flight plan each time bait leaves the aircraft. A bag of 50 baits is loaded into the 'cat bait carousel', by a bombardier through a funnel, for each drop. The

carousel has five segments, and when loaded the baits are distributed reasonably evenly within each segment of the carousel. The carousel is rotated by a DC motor speed controller which sets the carousel rotation speed (and therefore the bait distribution distance).

The baits are loaded prior to the 'aerial baiting computer system' initiating each bait drop. When triggered by the 'aerial baiting computer system', the carousel rotates one complete revolution distributing the baits over the distance set by the carousel motor speed controller. The aerial baiting computer system releases the baits at each1 km map grid, along flight transects 1 km apart, to achieve the application rate of 50 baits/km^2. This along with airspeed and altitude spreads the 50 baits across an approximate area of 200 x 40 m (Algar *et al*. 2013a).

Feral cat bait encounter rates, distribution patterns and habitat preferences are continually reassessed to improve baiting efficacy and cost-efficiency.

Ground baiting

The prescription for ground baiting campaigns requires the deployment of baits at 100 m intervals along road/track access (Algar *et al*. 2007). **Note**: the rates of lay for ground baiting with *Eradicat*® must not exceed 10 baits/linear kilometre, therefore the baiting interval and/or tracks selected may need special consideration in areas with high track density to ensure compliance with label conditions. Baits can be replaced during the "baiting window" if taken or spoiled but should not exceed 50 baits in total/linear km/year.

When baits are ground deployed they should be located along that edge of the track where the prevailing night wind will push the bait odour across the track. However, bait removal by non-target species can significantly reduce bait availability to feral cats when baits are placed along tracks (Algar *et al*. 2007). Algar and Brazell (2008) demonstrated a 'Bait Suspension Device' (BSD) to suspend baits above the ground that effectively stopped bait removal by non-target species yet provided ready access to feral cats. A bait, comprising two *Eradicat*® sausages tied at the link, are suspended at a height of about 400 mm from each BSD using 2–4 kg fishing line.

Aerial and ground baiting of an area

Aerial and ground baiting can occur together within an area and may be useful in targeting cats in aerial exclusion zones occurring within and on the boundaries of a reserve. A minimum 14 day interval should be put in place between aerial and ground baiting when both methods are to occur together within an area. Bait longevity and potential risk to susceptible native species should be a key consideration here as part of usual *1080 Risk Assessment and Approval* process.

2) Abundance of prey items

The relationship between bait consumption and hunger can be extended to prey abundance, which is also a function of long-term weather conditions (season/rainfall). Bait uptake is low when prey availability is high (Algar *et al*. 2007). When prey is plentiful cat baiting programs have met with varied success and it is anticipated that the likelihood of cats encountering baits when hungry is diminished when prey is abundant. To counteract this, baiting efforts should be concentrated during seasonal declines in prey abundance/activity, the "baiting window". A difference in bait uptake across geographic areas, when conducted at the same time of year, may reflect differences in prey availability.

In the arid zone where rainfall is unreliable, the time and intensity of rainfall events such as cyclones and thunderstorms will determine the abundance of live prey. In the arid zone, the optimum time to conduct baiting programs and maximise their effectiveness is under cool, dry conditions in winter. At this time rainfall, which will cause degradation of *Eradicat*® is less likely to occur than during the summer months. Additionally, during winter in the arid zone the abundance and activity of all prey types, (particularly predator-vulnerable young mammalian prey and reptiles) is at its lowest and bait degradation due to rainfall, ants and hot, dry weather, is reduced.

In semi-arid areas, the optimum baiting period is in the drier late autumn before the onset of winter rains when the prey resource is less abundant and activity levels are lower. In the wetter areas in the south-west and south coast of the state, the optimum baiting period is governed by the abundance and activity of prey (temperature regulated) and the onset of winter rains. Current monitoring indicates that autumn or early spring is when prey abundance and activity is at its lowest in the south coast region. Further research is occurring to determine the optimal time to conduct feral cat baiting campaigns in consideration of prey abundance and availability (as well as weather) in this region.

3) Weather conditions at the time of baiting

Preparation of the baits prior to aerial or ground delivery is also important to the success of the baiting program. In the field, baits must be permitted to sweat on racks under sunny conditions to allow the oils and lipid-soluble digest material to exude from the surface of the bait. If this process is prevented or interrupted due to adverse weather conditions, the baits may rapidly deteriorate and become either rancid or mouldy, and therefore unpalatable to cats (Algar *et al*. 2013b).

The effectiveness of baiting can also be reduced if significant rainfall occurs immediately following the baiting program. Rain renders the baits less palatable to cats by washing away the oils and flavour

enhancers that sweat to the surface of the bait (Algar and Richards 2010). Bait longevity in the field is a critical component in delivering successful baiting campaigns that target feral cats. Baiting outcomes can be improved if longer-term weather forecasts (7 days) are used to ensure that baiting programs are only conducted when prolonged periods of fine weather are assured.

References

Algar D., Angus G.J., Williams M.R. and Mellican A.E. (2007). Influence of bait type, weather and prey abundance on bait uptake by feral cats (*Felis catus*) on Peron Peninsula, Western Australia. *Conservation Science Western Australia* **6(1)**, 109–149.

Algar D., Bell L., Cowen S., Onus M. and Rasmussen D. (2013a). *Eradicat*® Bait distribution from an aircraft. Unpublished Report to Western Shield. Western Australian Department of Parks and Wildlife. 5 pp.

Algar D. and Brazell R.I. (2008). A bait-suspension device for the control of feral cats. *Wildlife Research* **35**, 471–476.

Algar D. and Burrows N.D. (2004). Feral cat control research: Western Shield review, February 2003. *Conservation Science Western Australia* **5**, 131–163.

Algar D., Onus M.L., and Hamilton N.A. (2013b). Feral cat control as part of '*Rangeland Restoration*' at Lorna Glen (Matuwa), Western Australia: the first seven years. *Conservation Science Western Australia* **8(3)**, 367–381.

Algar D. and Richards J. (2010). Controlling introduced predators in the Rangelands – the conclusion. *LANDSCOPE* **25(4)**, 17–23.