SUMMARY OF STUDIES INVOLVING THE MAINLAND QUOKKA IN THE DWELLINGUP DISTRICT SINCE THE EARLY 1970'S.

In the early 1970's Quokkas were thought by many to only occur on Rottnest Island.

A study was initiated at Dwellingup in 1971 to assess whether there were in fact any populations of the Mainland Quokka still surviving in the wetter western creek systems of the Dwellingup and surrounding areas.

Initial surveys showed there were signs of quokka activity in some swamps of the western scarp area which comprised of Agonis, Hypocalymna, Boronia and Lepidosperma plant species.
Six swamps were selected to study the mainland Quokka but before so a suitable method had to be developed to catch Quokkas. Many types of traps were tried including spring snares, box traps, fixed snares and finally a fence with circular funnel trap at each end. The fence and the funnel traps were developed and proved by far to be the most effective way of catching Quokkas and this method was used from then on in the studies of the mainland Quokka.
Baits were used to lure the animals into the fence funnel traps and apples proved to be the best bait.
The fence funnel trap consisted of a rabbit netting fence constructed across a suitable swamp supported by 50x25 wooden stakes and at either end there was an enclosure approx. 3m diameter again constructed from rabbit netting and 50x25mm wooden stakes. The funnel entrances began at the end of the fence within the end enclosures and was accessible from both sides of the fence. The semi-circular funnels protruded approx. 1m into the enclosures and was secured to the ground with wire pins.
Quokka runs in suitable swamps were numerous and ran parallel to the creeks. Fences were constructed at right angles to the creeks so cutting off the 'runs'. This made the animals follow along the wire fence guiding them into the circular trap at either end.

The six swamps used to trap Quokkas resulted in 52 animals being weighed, measured and tagged and details of sex, breeding and general health was recorded. All animals appeared to be in very good health and females often had young in their pouches. Some problems were encountered with larger joeys falling from their pouches and these were "taped" back in with masking tape. This proved very successful as recaptured females were still carrying their young. As many as three adult Quokkas have been caught at one time in one enclosure. It was found that the mainland Quokka was capable of breeding all year round where-as the Rottnest Quokka produced young only in summer months.
Population levels in Quokkas in unburnt (5-10 yo) swamps amounted to 1 per 2 hectares. Young Quokkas matured at approx. 2 years old and were capable of breeding at this stage. Average distances travelled along swampy gullies by Quokkas was approx. 250 metres and the furtherest travelled by any animal was approx. 700 metres.

EFFECT OF CONTROLLED BURNING ON QUOKKA POPULATIONS.

Limited studies have been carried out at Dwellingup on population changes of Quokkas after burning. One such experiment showed the following details:

1. Quokkas are driven out of their habitat by total, hot prescribed burns.

2. The ideal burn is one which burns between 60 & 70% of total area of swamp and leaves an uneven aged swamp with the following scrub ages:
   (i) Burnt out sections.
   (ii) Sections of up to 5 years old which are too succulent to burn under normal conditions.
   (iii) Unburnt sections of various ages.

The above gives the ideal habitat for Quokkas where they have shelter in unburnt sections, feeding areas in up to 5 year old unburnt patches and freshly burnt areas for future browsing.

Studies have shown that patches of bossia aquafolium (waterbush) bordering swamp edges are unsuitable for Quokka habitats. Long unburnt swamps of uniform age exceeding twelve years are also unsuitable as Quokka habitat.

Experiments have shown that Quokkas will feed through freshly germinated swamps very soon after a burn if they have thick unburnt areas to retreat to. It is unknown at this stage what size these unburnt pockets should be to accomodate a population of Quokkas. Periodic patch burning of Quokka habitats is required to produce succulent regrowth of vegetation for browsing. Normal spring prescribed burning tends to result in uneven aged swamps and it must be stressed that total swamp burning in known Quokka habitats must be avoided if we wish to protect the Quokka on the mainland.

QUOKKA RESEARCH CARRIED OUT AT DWELLINGUP SINCE 1971

Very little work has been carried out by people from the Dwellingup Research Station since the studies done in the 1970's. One assessment done was in November 1988 when five sites within the Huntly mining envelope was looked at for signs of quokkas. Four of the five swamps checked showed clear evidence of Quokka runs and scats but the fifth site was long unburnt and no signs of Quokkas was found.
No further work was carried out on Quokkas until 1992.

In March 1992 studies recommenced on the mainland Quokka in the Dwellingup District beginning with a broadscale assessment of thirty swamps in the Western scarp area. Of the swamps checked approximately fifteen of them had signs of quokka "runs" and scats.
Some of the areas checked were too disturbed by pigs while others were inaccessible due to blackberries. Three swamps with higher concentrations of "runs" were selected to test methods of capture which were developed in the 1970's using the "Fence Funnel trap".

The fence funnel trap was constructed in the Holyoake swamp in the same location as was used in 1971 and was baited with apples. After many days of "free feeding" this method of capture which had proved very successful in 1971 failed to catch and hold any Quokkas in this study. There were three occasions when animals had been trapped and had escaped through the funnel so the funnel was removed and replaced with a dropping door. This also failed to catch any animals.
After Collie had success with catching Quokkas in large box traps these were borrowed and set in three different swamps. Using these box traps for three hundred trap nights only resulted in one Quokka capture. This was a male in good condition and weighing 3.65 kgms. Apples have been the only bait used to date in this study and it is now thought that perhaps trying different baits may result in more captures. This will be tried in the near future at Dwellingup with perhaps one more fence funnel trap being set up in another swamp.

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