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**Application to become an approved Wildlife Trade Operation for the commercial wild harvest of Land Hermit Crabs *Coenobita variabilis* from north Western Australia (by Merv Cooper's Crazy Crabs™.)**

## **1. INTRODUCTION**

The applicant is seeking approval of his harvest operation as a Wildlife Trade Operation to enable the commercial export of wild harvested Land Hermit Crabs, *Coenobita variabilis* to overseas pet stores. The applicant has been in operation in Australia since 1979 selling these animals to domestic pet stores..

These animals are also very popular pets throughout the United States and have been commercially available there for over thirty years. In the United States, there are two main species of hermit crabs found as pets: *Coenobita clypeatus* (goes by a variety of names such as Caribbean crab, purple pincher crab, land hermit crab, tree crab, or soldier crab) and *Coenobita compressus* (Ecuadorian Crab or E-Crab) (Source: <http://exoticpets.about.com/cs/hermitcrabs/a/hermitcrabs.htm>). The applicant has had enquiries to export these animals to such places as New Zealand, Tasmania, Singapore, United Kingdom, Japan, Hong Kong and the United States of America.

### **1.1 SCIENTIFIC NAME**

The scientific name for the species is *Coenobita variabilis*. This species is endemic to Australia, being limited to only the north western portion of West Australia and the Northern Territory coastline.

### **1.2 COMMON NAME**

Their common name is Land hermit crabs. The applicant markets them to pet stores and the general public as "Crazy Crabs" our registered trademark.

### **1.3 LOCATION OF HARVEST**

The Crabs will be harvested from beaches between Exmouth Gulf and Derby, Western Australia (a range of approximately 1500km) with the main collecting area being the north of Port Hedland an area predominantly made up of sandy beaches and also around the Exmouth gulf area sandy beaches and some mangrove areas. On a collecting trip for us for an export order we would probably work for two nights and collect somewhere in the proximity of 3000 crabs.

#### **1.4 DESCRIPTION OF HARVEST**

Harvest is of adult animals from coastal regions. The size of specimens collected range from around 15mm to around 60mm. Size is an indication of age, so the larger the crab, the older it is. These animals spend their juvenile stage in the ocean as part of the zooplankton community, coming ashore to live when around the size of a pea. The actual time spent in this juvenile aquatic stage is estimated to be around one year. One would have to spend years on the beach to study this species as its growth goes in spurts when they moult and look for bigger shells to live in



Pictures are of a group of crabs, and a single crab.

The age of these crabs when they can breed is not really known, but the applicant has had specimens lay eggs when small in size. The applicant therefore presumes that some juvenile and some adults would be taken during the harvest of these animals.

The applicant ensures that really small crabs, eg. less than 1.5 cm in size are left on the beach. They are not collected because of their small size and lower customer demand. All specimens collected are greater than 1.5cm.in size.

#### **1.5 LEGISLATIVE PROTECTION**

At the state level, *C variabilis* is managed by the Department of Fisheries in Western Australia, and it is defined as a fish under the *Fish Resources Management Act 1994*. Harvest of this species is currently regulated by way of licensing. The Department of Fisheries issues an 'endorsement' to harvest these animals through a W.A. Commercial Fishing Licence (CFL), though the licence does not regulate the quantity legally allowed to be harvested.

## **2. AIMS AND OBJECTIVES OF PROPOSED OPERATION**

The applicant has been marketing and distributing these animals throughout Australia since 1979. The applicant has also produced a website, so that the public may learn how to care for their new pets.

Over the years, the applicant has received much interest from overseas for these animals, but there has not been any lawful method of exporting them overseas. This is the reason the applicant is applying for this export permit. An increase in orders due to the ability to sell animals on the overseas market would mean an increase in the collection of wild stocks during the year. Since this letter was issued in February we have made shipments to the United States, (export figures have been sent to Environment and Heritage.) Currently we are negotiating with a Company in Korea who have shown a strong interest but we are still waiting confirmation from their end to import.

We had interest from three countries that were looking at purchasing our hermit crabs for Xmas 2013 but lost them because we didn't get new license approval until the following April 2014. Exporting hermit crabs out of Australia is not easy as some countries require a health certificate before they will import but we believe we need to take the animals for inspection before shipping and then go back and pack them for airfreight shipment to their destination. We have to supply the buyers with the health certificate before they will put in their order!

### **3. DESCRIPTION OF MANAGEMENT MEASURES**

At present, the Department of Fisheries does not consider this species to be in need of formal management plans for protection, however, management and monitoring is conducted through licensing requirements. It is a condition of this licence that the applicant submits a monthly return when collecting crabs, detailing the number of crabs taken, time and effort spent collecting, and details of the areas where they have been collected.

The Department of Fisheries does not require any further reporting other than the current monthly harvest report system. There is no current legislative limit set by the licensing program as to how many individual animals can be collected, the regions of collection, or, the duration of collection activities.

#### **3.1 COLLECTION AREA**

Climatic conditions greatly affect the habitats where the crabs are located. The ability to locate and collect specimens is also greatly influenced by climatic variability. As a result, the collection areas are subject to change in response to the local weather and climatic conditions at the time of harvest.

The collection areas are located between Exmouth Gulf and Derby in Western Australia with the major portion of the catch being sourced from the Eighty Mile Beach between Port Hedland and Broome. The applicant does not source hermit crabs from the Northern Territory, nor from coastline which is held under native title. Access to these areas is by a single four-wheel drive, usually on public tracks down to the beach. As the beach is not owned privately, access is only restricted by track availability and condition.

Mangrove forests are along 80% of our northern beaches protecting the species from over collecting

Exmouth Gulf is the closest area to Perth to collect hermit crabs. If while collecting them at the bottom the Gulf and we receive rains, the tracks become mud and we would not be able to get back out.

### **3.2 LAND OWNERSHIP**

All collecting is done on the beach which is public land. To gain access to (some of) these collecting sites, the applicant (occasionally) needs to cross through private property. On these occasions the applicant seeks permission from the land owners first and we show our licence issued from the WA Fisheries. Once permission is granted, the applicant is able to access otherwise inaccessible beach locations by utilizing station tracks that are off limits for the general public.

Many of the collection areas between these towns are very isolated, and usually cattle stations or similar occupy the land between main roads and the shoreline. Most of these property owners have now met us several times and have no problems with the applicant transiting through their properties. The property owners know why the applicant is there, and that the applicant's presence has no effect upon the livestock that occupy the property. As a matter of course, when departing the area the applicant reports back to the station owner on the condition of the water supply for the livestock, or other matters of concern that needs to be brought to the station owner's attention. By respecting the uniqueness of the area, and taking care that all rubbish is removed and areas used for camping are left in a pristine condition, station owners have no problems with allowing ongoing access to their pastoral leases.

### **3.3 HARVEST QUANTITIES**

Harvest quantities can vary by the seasons and by beach access. Crabs are generally more plentiful during the summer months October through to April. During the winter months the larger ones move inland to hibernate until spring. Smaller sized crabs tend to stay near the shore throughout the year, although numbers are lower in the winter months

Cyclonic activity can also affect crab numbers, large sea swells can destroy crab habitat, so they move to higher ground inland when these storms are expected. After cyclones, beaches and dune zones can be flooded and tracks inaccessible for several weeks to vehicles. This time of the year is also the breeding season for *C.variabilis* and therefore no collecting occurs during this time.

Currently the applicant harvests around 2000 crabs during a two night collection trip. However, the numbers of *C.variabilis* taken during each trip varies depending on availability and never more than 75% at any particular location. I have a collector that supplies me with hermit crabs hence I only need to collect a few times throughout a year to collect hermit crabs solely for export and or my stocks.

During a typical year the applicant could take on average 30,000 *C.variabilis*. person holding the WTO license and to do this the applicant would access new locations within the ranges as stated earlier. It is difficult to compete in an export market when some countries get their crabs from other countries that supply at very low prices.

**Measurement** – one crab counted as a single item.

### **3.4 METHOD OF HARVESTING AND IMPACTS ON HABITAT AND SPECIES**

#### **Impacts upon the Species**

Collection of crabs is done at night. The method involves simply walking up the beach with a torch and bucket. All collecting is done on foot, no vehicles are used on the beach.

Collecting is selective as the applicant already knows which sizes the applicant has plenty of or which sizes the applicant requires on each trip. The applicant takes four to six people on each collecting trip and one vehicle with a 6x4ft trailer. The applicant takes in all food, drinking water, fuel for the generator and camping equipment. All equipment and rubbish is removed at the end of each trip.

As mentioned earlier the applicant has been collecting *C.variabilis* since 1979. During this time minimal reduction has been seen in the crab population where collecting is carried out, as the areas targeted are isolated and not frequented by the general public. It would be fair to say that a reduction in crab numbers has occurred in and around populated areas such as Broome, however, this has not been caused by either of the two authorised holders, as neither the applicant, nor the other licensee, would attempt to collect crabs in these areas, as the build up of population and vehicular traffic on the local beaches has reduced numbers of larger sized crabs significantly. (There are still good quantities of small *C.variabilis* even on Cable Beach however larger specimens are taken by either holiday makers or children.) We collect in the areas only a couple of times a year and does not appear to have any detriment on populations. work in the night and early morning we cant see past our torch beam so to estimate how many crabs and what size they are at night time is near impossible we try to leave all smallest of hermit crabs when collecting.

We move more smaller and medium sized hermit crabs than big ones. We take all the empty shells from the crabs that change into the other shells we provide for them to go into and return the empty shells back to the beach on our return.

When practical, transporting and packaging is arranged at local domestic airports thereby avoiding unnecessary stress to the catch. When operating in inaccessible areas, the catch is held in plastic containers prior to being road transported back to the metropolitan area. Through many years of experience, the applicant has been able to develop a process for taking, holding and transporting hermit crabs that has reduced the mortality rate during transit to practical zero for the last 10 years. An important part of the applicant's business plan is to ensure that at all stages of the process from take to retail sales and

after sale considerations are taken into account to ensure that the crabs are not subjected to excess rough handling, heat stress, dehydration or lack of nourishment. The dimensions of the containers used for transporting the catch are 56cm x45cmx30cm, colours maybe grey, white or other colours, the lids are drilled for ventilation and beach sand is placed in the bottom of these containers for the crabs to bury in. The holding capacity would be between 250 to 450 and would be dependant on the size of the crabs collected. Mortality rates are negligible at our, and other retail premises, where tanks are heated in winter to overcome the problem of cold nights, thus enabling a very minimal mortality rate, mortality rates once they are with their owners seem to be low from feedback with our clients.

Transportation of animals to our overseas destinations is carried out as follows: Firstly we pack the crabs in a hessian bag that contains moistened sea sponge. This is placed into a styrene box which has cut out vents of approx 200mmx100mm deep, which has been covered with snake wire and provides more than adequate ventilation. The styrene also acts as an insulator there by keeping the crabs warmer. The styrene box is then placed into a cardboard box which also has air holes in it, and provides protection by minimizing the breakage of the styrene box. Our shipments to the US have been very successful with no mortalities reported by our clients at the other end.

At our retail premises, crabs are held in several different types of holding tanks. We use up to 12 of these at any one time depending on quantities on hand. As mentioned earlier the crabs have under tank heating and are kept around 25-30 degrees, during summer no heating is required. Shipment method has been described in an above paragraph.

Length of holding at our premises can be up to between 2 days to a week depending on flights and quantities ordered.

The hermit crabs are collected over 2 nights and then air freighted to Perth airport and I pick them up and take them to our premises and wash the crabs and place them in our holding tanks ready for local and interstate deliveries. Our death rate is one or two deaths each shipment. We have sent hermit crabs to several countries and have had no problems with any dying in transit. We have heaters under the holding tanks for the winter periods which keeps the crabs warm all year. To assist new owners in looking after their pets, the applicant has developed and prepared a booklet that explains how to look after and care for their new pet. The applicant has successfully trialed, developed and marketed a food supply that has copied what the animals eat in their natural habitat. The applicant makes this available to the consumer along with instructions on how to care for these animals in captivity.

Once the catch arrives at the applicant's commercial premises they are transferred from their transporting containers into glass aquarium tanks where they are kept prior to either being sold directly to the public or on sold to other

retail outlets. The aquariums are heated during the winter and cooled during summer maintaining a constant temperature thereby ensuring that the crabs are not stressed or injured by prolonged exposure to unfamiliar climatic conditions.

## **Impacts on the Habitat**

### **Dunes: LOW IMPACT**

During the collecting process, the vehicle is parked and does not drive on the dunes. The vehicle is used to gain access to the beach where a base camp is set up. A small all-terrain four-wheel-drive motorbike is used for accessing areas away from the base camp with no damage done to the dune areas and minimal tyre prints only being left on the beaches at low water.

### **Beach: LOW IMPACT**

During the collecting trips, the applicant and employees camp in tents, usually three two person tents. One central base is established for cooking and food preparation. Cooking is carried out on a Gas BBQ with a portable generator used for running a portable freezer for foodstuffs. A chemical toilet is also deployed during these collection trips.

### **Noise: LOW IMPACT**

During each trip, very little noise is made as the four stroke generator is run for a few hours in the late afternoon only. At night gas lighting is used around the camp and during collection, handheld battery-operated torches are used.

### **Rubbish: LOW IMPACT**

When camping, whatever is taken in is either consumed on-site or brought back out. All rubbish is collected and disposed of correctly. If rubbish is found that has been discarded by previous campers, it is the applicant's policy to collect this as well, thereby restoring the area to its former characteristics and reducing the chances of being blamed for somebody else's untidiness.

The selection of the camping sites are governed by a number of factors. Some of these are but are not limited to:

- An area where permission for access has been granted by a pastoralist
- Proximity to beach frontage
- Area that has minimal amount of usage by the public
- An area that provides shelter from prevailing winds
- An area that might have shade provided by trees or a cave
- An area close to a fresh water supply
- An area that has long flat beaches suitable for collecting

## **3.5 TIMING AND DURATION OF HARVEST SEASON**

The applicant initially collects during the summer months, between September and March. Each trip is usually four to six days in duration depending on the number of people and the site chosen.

## **4 MONITORING AND ASSESSMENT**

### **4.1 POPULATION SURVEY**

The Fisheries Department of Western Australia have indicated that there has not been a study of this nature conducted however during the twenty six years that the applicant has been collecting these crabs no long term decline in abundance has been observed.

Although no legal minimum size or quota restrictions have been imposed by the Department of Fisheries, the applicant imposes his own restrictions on the number of animals that are taken from all collecting sites. The applicant only takes animals that are in excess of 1.5cm in size and takes approximately seventy five percent of animals between 1.5cm and 6 cm, thereby ensuring that sufficient animals remain for breeding purposes. These animals live in groups and when harvested by hand you cannot collect the entire group (a) as they do not stay stationary at the sight of collection and (b) you collect sizes as specified. With the many years of collecting experience you can ascertain the amount that may be at one sight and be aware of size and amount collected rather than actual documented amounts.

All the smallest crabs are returned to the beach from our collecting (black) tubs which have 60 mm of beach sand in the bottom of each for the crabs to bury in and stop any possible impact on them.

It should be noted that given the nature of the terrain where these animals are found, ie impenetrable mangrove areas plus areas that are protected due to native title restrictions The possibility of depletion of the species is virtually impossible because of the range of *C. variabilis* ie Exmouth – Derby the applicant only collects from known sites at infrequent intervals. We would not harvest the same site more than three times in a year. as this has less impact on population density. As mentioned previously although no scientific study has been undertaken on *C. variabilis* the applicant applies the precautionary principal and never takes all available specimens at any location and is able to return to areas where he has collected over the last thirty years and can confirm that there is no apparent decline in collectable animals. When we return to these areas there is always plentiful amounts to be seen, and it still takes the same amount of time indicating that there seems to be no decline in numbers.

There is always large quantities of all size crabs it is only the weather that determines how many crabs come out on any particular night.

### **4.2 INDEPENDENT MONITORING OF HARVESTING**

The applicant will complete the usual documentation to the Fisheries Department on a monthly basis plus any additional reports if required.



## **5 MANAGEMENT STRATEGIES**

As there has not been a population study done on these animals, it is unknown just how many of these animals actually live in this area, or whether the harvesting has had any effect on their numbers. All of the areas where we collect are extremely isolated and we could not physically cover the full extent of the area that the crabs inhabit.

I feel there has been little decline in any size crabs in the areas we collect from

As a responsible licensee, the numbers and sizes of the animals found in each collection area will be monitored. If it is noticed that a downward change is occurring to the stock number or size no further collections will be made from the area. Stock levels will be monitored in following months/years to determine whether the change had been brought about by over fishing, environmental or other factors.

As there has been no studies done on the population dynamics of this species, it is unknown how many of these animals live in the area. As previously mentioned, with the exception of more densely populated areas, the anecdotal evidence is that in the areas where collections have taken place over the last twenty years, the populations are still as prolific as when collections were first started.

Western Australia is a large state, and the range of this species extends from Exmouth Gulf through to the Northern Territory border. This provides in excess of three thousand kilometers of coastline where these animals can be found. Much of the coastline is taken up with either pastoral leases or areas held under native title where access is denied or the terrain is inaccessible, thereby preventing any chance of the *C.variabilis* species being extinguished.

## **6 COMPLIANCE**

As a holder of a Commercial Fishing Licence from the Department of Fisheries, the applicant collects stocks from the wild according to the conditions of the Commercial Fishing Licence. Were the applicant to be successful in obtaining a permit to export *C. variabilis* he would ensure that only animals that had been collected under the authority of his permit were those that were exported. The applicant would continue to sell the catch from the other authorization holder but those animals would only be used for the local market and would not be exported. The latest report as indicated to us is that there is now five licenses.

## **7 REPORTS**

The applicant will submit copies of the harvest reports to the Fisheries Department on request. (As of this date the Department of Fisheries has not requested a detailed report on the *C. variabilis* and receives only the monthly return catch and effort returns.) To date we haven't put in an annual report, however as we have now commenced exports we will be forwarding documentation to your office.

Does your Department have specific forms for us to fill in to satisfy your yearly report?

I only send in my export report when I actually send off an order and send a yearly report.

## **9. BACKGROUND INFORMATION**

The applicant has been distributing these animals around Australia for over twenty years. Over many years of collecting and observing these animals in their natural environment the applicant has a good understanding of their place in the ecosystem. They are a scavenger, cleaning up the beach, and eating whatever they can find. They tend to move up and down the beach, mainly driven by food sources, and seashells available for them to live in. These animals have no boundaries or territory but can move freely around to populate beaches wherever they desire to go.

Offspring are not cared for by the parents, and the ocean currents determine where they will live once they develop enough to live on land permanently. This can be plainly shown by their population distribution along the vast northern coastlines of Western Australia and the Northern Territory.

In their natural environment, *C.variabilis* lives in an abandoned sea shell that it finds on the beach. As the animal grows, it reaches a stage where it needs to find a larger shell and move into that. Once this takes place, the shell that has been vacated is then sought out and inhabited by a smaller animal.

In addition to the applicant's authorisation to take *C.variabilis*, the applicant is also a commercial shell dealer and, as such, has an extensive array of sea shells both collected locally and from around the world. The applicant also sells a wide range of both Australian and imported sea shells of varying sizes and shapes that can be used as crab homes. Imported shells are placed in with the crabs collected during the harvest period. *C.variabilis* tends to seek out these more brightly coloured shells, leaving behind their old shells. The applicant returns these shells to the harvest area to be inhabited as future crab houses on the next collecting trip.

It is envisaged that once the applicant is issued with a licence to export *C.variabilis* the applicant will initially be testing out the overseas market. We have now established an export client and expect to receive orders for approx 2000 to 5000 crabs per month. Market testing with this type of export is not easy as countries have their own restrictions and rules for the import of these animals. As previously mentioned we have now completed our initial exports And have future plans to travel to overseas destinations to try to broaden our client bases. As previously mentioned, because of the limitation on the authorisations issued, and the methodology used in taking these animals the applicant does not foresee an immediate major increase in the number of animals taken. The time factor involved in collecting plus access and seasonal constraints provide natural limitations. However, it is envisaged that if an export

licence were granted, this establishment could distribute a further % *C.variabilis*. As I explained the Indonesians supply the world with crabs at 25 cents ea and I supply crabs at \$2.00 up to \$5.00

As previously stated in this application the availability of *C.Variabilis* will vary from one location to another, plus from season to season and from full moon to new moon and spring tide to neap tide. To provide any population dynamics without conducting intensive monitoring over a long period of time, and without taking into account the known variables would be impossible. Because we collect at different locations we are not overfishing in any one area, and the small ones which we leave behind will continue the species.

Dealing with nature is never easy

A possible means of providing an anecdotal indication of the population dynamics of these animals would be to use the last collecting trip as an example or indication of the abundance of the animals on that occasion.

The last collecting trip the total collecting was carried out over four consecutive nights during spring tides. Collecting was limited to approximately six hours a night as once the moon had risen the crabs bury themselves in the sand or move off the beach into the sand dunes.

On our previous collecting trip for export we collected approximately 3000 crabs. We had to leave early due to weather. This trip is typical of the collecting trips that the applicant has been conducting for the last twenty six years. As mentioned before the applicant has combined his collecting of *C.Variabilis* with his conchology interests and has returned to the same area each year to take advantage of the spring tides for collecting both his shells and also *C.Variabilis*.

Although no scientific study has been carried out the applicant has found that during the twenty six years that he has been collecting in this area there has been no reduction in the availability of animals and it still takes the same amount of time to collect the same number of animals.