A Petition to Reclassify the Status of the Panama City Crayfish [*Procambarus (Leconticambarus) econfinae* Hobbs, 1942] from a Species of Special Concern (68A-27.005 F.A.C.) to an Unlisted Species.

Submitted to: The Florida Fish and Wildlife Conservation Commission

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Date: October 16, 2003

Signature: Frasier O. Bingham, Ph.D.

Copies of this petition will be sent to each of the current FFWCC Commissioners, to each supporting governmental and private entity, and will, as well, act as Bingham's Final Report to the City of Panama City, Florida.

THE PETITION

I request that the Florida Fish and Wildlife Conservation Commission (FFWCC) change the status of the Panama City Crayfish Procambarus econfinae from a listed Species of Special Concern (68A-27.005 F.A.C.) to an unlisted species. It is hoped that this petition will help dissuade the FFWCC from doing a great injustice to the citizens and the economy of Bay County, Florida.

The following data, discussion, and admittedly some speculation should convince even a casual observer that the future development of the Panama City area is a positive and not a negative thing for P. econfinae.

The following data and information is acknowledged but is not seen as being contrary to the expressed purpose of this PETITION:

1. The species may be restricted to a small part of Bay County, Florida.

2. The recently discovered locations where the species has been found number only something over 37 including the seven Bingham discoveries still to be authenticated.

3 Each population location thus far discovered is quite small being only an acre or two at the most.

4. Certain soil types were probably preferred by this species when those soils were undisturbed by man's activities. Today, all of the known locations of this species are areas where surface and subsurface disturbances have left soil conditions that differ from the original named and classified soils. For instance, an area that has been cleared of trees, destumpted, plowed, drained, and ditched will not exhibit the same soil profile as the original soil type.

5. The species has a fragmented distribution as will any plant or animal species that has been displaced from its original forest habitat due to man's policy concerning hot forest fires.

The following data and information is offered in support of this requested action:

1. There are certain "natural" parts of nature that man in his modern community cannot allow to run free. The American Bison was one of these, and hot forest fire is another. No one will propose that we again let fires burn from river to river. Perhaps hundreds even thousands of species have depended on the periodic destruction of the forest overstory by fire. Many of those species are now only found in man maintained clearings. I believe that P. econfinae is one of those.

2. It is noteworthy that P. econfinae has apparently never actually been found in the flatwoods. It has been found in cleared areas and ditches that may or may not have been flatwoods before being developed by man. I could not find them in the flatwoods and do not believe that due to the absence of fire that they can thrive there.

3. Man could decide to reintroduce hot forest fires that burn and kill the vegetative overstory in his effort to help this species. His next best choice for this species is to promote the clearing of forests and the open ditching of roadsides. Naturally that should be an effort balanced with the needs of the many species that require a thick forest overstory.

4. As the flatwoods in the Panama City area are cleared and developed, new locations are made available for this species to live. So far as the species is concerned, man is now inadvertently making up for his decision against the burning of forests, with his decision to clear and maintain some areas and install and maintain an extensive stormwater control ditching system.

5. We can expect that as the Panama City area is developed, we will find this species in more and more places. This is of course only if we look for it. Each time bonafide scientists have looked for it, they have come up with new locations. This trend cannot be used to suggest that the species is on the way out. Since 1999, Dr. and Mrs. Keppner have found and disclosed some 30 current habitation sites. They have not disclosed the locations of the sites that they have found on private properties since March of 2002. The numbers and locations of those sites may be privileged information. I have seen the species in thirteen locations of which some seven are new and have not yet been authenticated.

6. It is apparent that the continued development of the Panama City area is in the best interest of P. econfinae if cleared areas and roadside ditches and swales are maintained in the future using the time-honored and proven maintenance schedules and equipment used in the past. This includes grading and mowing and does not include the use of herbicides.

7. A management plan for P. econfinae is not needed because the species appears to be doing well. If any hard data to the contrary appears, this assessment could change.

8. There is no evidence that any of man's activities other than the control of hot forest fires have contributed to the species exodus from the flatwoods. To pontificate on the negative effects of silviculture and residential and commercial development is nothing more than pure speculation and goes directly against the facts. P. econfinae is not found in flatwoods and is found in developments.

9. P. econfinae was placed on the Species of Special Concern List with little or no knowledge as to how it was flourishing or disappearing at man's hand. I believe that it was listed with the thought in mind that if good, hard data was someday developed and indicated a deteriorating situation, that the species would be given needed State protection. That data has not been developed. In fact, all of the good, hard data now available on this species indicates that, if anything, it is doing better.

10. The recent take permit issued by the FFWCC for an underground sewer main construction job in Panama City is only the first of a torrent of controversial and difficult situations that will involve the FFWCC if they allow the presence of P. econfinae, who likes people and their development, to complicate, hold-up, and make more expensive every project in Panama City that involves areas that hold water from time to time.

11. The holding up for praise, and the glorifying of, a crayfish that lives in and loves roadside ditches is now and would continue to be an unwanted, unneeded, and unpopular governmental decision.

12. I have attached here as parts of my petition, a number of items that are noteworthy and should be considered in your deliberations to delist the crayfish P. econfinae.

ATTACHMENTS

1. Flooding Induced by Deforestation

Dr. Andre Clewell and others have noted that deforestation by logging could result in high water tables and the formation of savannah communities. Such communities might be excellent habitat for P. econfinae.

2. Why the Listing of Procambarus econfinae is so Problematic.

3. Florida Crayfish Lists

4. On the FFWCC Policies For the Taking of State Listed Species

5. Results of Bingham's Crayfish collecting trips in Bay County, Florida

6. Spin City Notes

7. A Summary of the Endangered Species Program in Florida. October 1, 1976, by F.O. Bingham, Ph.D.

8. The Panama City Crayfish Take Permit - Permit No. WX 03132 issued 16 April 2003

9. Procambarus econfinae and the U.S. Fish and Wildlife Service

10. About the Petitioner - About the FFWCC

11. The Assigned FFWCC Review Panel

12. Crayfish Letters and Documents

13. Persons Involved in the Panama City Crayfish Project

14. References Used in the Development of this Petition

15. The Crux of the Matter

ATTACHMENT 1.

FLOODING INDUCED BY DEFORESTATION

I have attached here an interesting finding concerning areas that when forested, did not contain standing waters but when cleared, did so. The subject cleared and maintained powerline rights-of-way in Panama City might well be periodically holding a few inches of standing water only because of man's previous deforestation efforts there. If that is the case, the powerline rights-of-way would not have contained suitable habitat for Procambarus econfinae before man's intervention there.

As for roadside swales and ditches and cleared areas, I have only found Procambarus econfinae in a very select set of circumstances, these being:

1. There is no primary or secondary forest canopy.
2. There is no noticeable wet weather or dry weather water flow.
3. There is a wide variety of short herbaceous wetland plants.
4. There is a site maintenance program in effect.
5. The area holds water for extended periods in wet seasons but is dry during dry seasons.

Jeff Bingham

THE VEGETATION OF THE APALACHICOLA NATIONAL FOREST: AN ECOLOGICAL PERSPECTIVE

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Prepared under Contract Number 38-2249, U.S.D.A.-Fores Service, Atlanta, Georgia, and Submitted to the Office of the Forest Supervisor, Tallahassee, Florida.

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that low levels of phosphorus restricted growth. Applications of phosphorus on an unditched site with minimal site preparation raised the site index from 28 to 68 feet.

Harper (1922) described a hillside bog in Alabama which was floristically similar to the one below Bloxham and also one described from southern Mississippi by Pessin & Smith (1938). The bog below Bloxham lies downhill from high pineland (1), pine-palmetto flatwoods (2a), and a zone of titi swamp (5b). The savannah occupies an area where the head of ground-water is forced to the surface while running downhill to the bay swamp (6) at the bottom. At times of high water the surface is quicksand, with only the interlacing roots of wiregrass preventing one from sinking. When one walks on the site, depressing the mat of wiregrass, water gushes from crayfish chimneys as if from a garden hose.

The question has been raised whether or not southeastern savannahs are successional, permanent, or artifactual communities. Penfound (1952) suggested that savannahs could be created by excessive fire or logging. Wells & Shunk (1928) in a classic study on a savannah in North Carolina noted that nearly all savannah vegetation grew on hummocks which they believed to be the soil around former root systems in a shrub-bog of blackgum and swamp cyrilla. With a drop in water table in post-Pleistocene times, the savannah replaced the shrub-bog, owing at least in part to an increase in the incidence of fire associated with a less hydric habitat.

Pessin & Smith (1938) noted that logging of longleaf pines resulted in a higher water table in successive years and in the subsequent invasion of pitcher-plants and other

savannah species which had been absent previously. They suggested that removing the trees reduced the evapotranspiration sufficiently to raise the water table, or rather to prevent its being lowered. Wahlenberh (1946) expressed the same opinion on savannah formation.

Quintus A. Kyle (personal communication) added substance to that theory. He said that the present savannahs west of Bradwell Bay were formerly low, wet longleaf pine flatwoods, that were perhaps not as densely stocked as pine-palmetto flatwoods usually are. These pines were cut in about 1915, and thereafter the water table rose, and savannah vegetation became evident. It seems likely that the acreage of savannahs has increased since the initial logging in the ANF. If so, much of the Pleea phase may have once been low flatwoods (2a), which is now being converted to savannah because of a rise in the water table. The pine-titi phase would then represent additional areas being converted to savannahs, but lack of fire has allowed the invasion of brush.

Of course the reduction in evapotranspiration is not necessarily the only mechanism for raising water tables and thereby creating savannahs. The new hypothesis was advanced in chapter 4, suggesting that slumping of the surface could be creating wet depressions as organic acids dissolve calcareous deposits in underlying Miocene clastics.

The Verbesina savannahs lack pine stumps, but adjacent longleaf pine flats (13) still retain stumps remaining from the original timber harvest. This observation suggests that the Verbesina phase is a permanent, edaphic vegetation type, and was not created via recent reductions in evapotranspiration. The heavy soils likely retain water much more effectively than sands. Evidence for this comes from

a somewhat loamy savannah of the Pleea phase near Ft. Gadsden (T6-R7-sw29), where the savannah is actually a foot or so higher in elevation than the adjoining, sandier and drier pine-palmetto flatwoods (2a).

Changes in savannahs resulting from disturbance were indicated by Pullen & Plummer (1961). They resurveyed a savannah which had been studied in 1906 by R. M. Harper, and which had been drained and intensively grazed since then. They counted 98 species not listed by Harper that were introduced because of disturbance. Many of these were weedy species. They also said that about 50 species had been eliminated, including spectacular species of pitcher-plants, sundew, gerardia, aster, coreopsis, colic-root, meadow-beauty, cone-flower, Sabbatia, and Balduina.

Eleuterius & Jones (1969) described a savannah from southern Mississippi. The species composition resembled that in the savannahs of the ANF, but they included a number of species which are more typical of longleaf pine flats (13). They emphasized that without fire the sedges and woody species were favored. Some soil nutrient data were included.

Wells & Shunk (1928) noted the complete lack of legumes in a savannah in North Carolina. Legumes are rare or absent in savannahs of the ANF, although many species are represented, some abundantly, in adjacent pinelands. Perhaps the nitrogen-fixing bacteria in leguminous roots cannot survive the long hydroperiods of savannah soils. B. W. Wells (personal communication, 1970, on a memorable foray to the savannahs west of Wilma) noted the large number of species with leaves appressed against their stems, which he interpreted as a mechanism to prevent transpiration. Plants of savannahs may be physiological xerophytes, even though they grow in wet soils, because high acidity prevents the rapid absorption of water.

ATTACHMENT 2.

WHY THE LISTING OF PROCAMBARUS ECONFINAE IS SO PROBLEMATIC

In my estimation, a number of factors make the Crayfish Procambarus econfinae a poor choice of an animal type and an ever poorer choice of a species for the FFWCC to hang its hat on.

The reasons that this animal and the species is a poor choice to go to war over are many.

1. The State does not yet know where this crayfish lives as for its environmental habitat or range, and does not have any idea of the size of its population.

2. Named Crayfish species in Florida number approximately 55 with at least 10 of these species living in Bay County.

3. Many of the species of Crayfish living in Bay County cannot be identified as to species without the use of a microscope and published keys that can only be used by trained scientists. Even with the above equipment, many younger specimens, adult females, and some adult males are practically impossible to identify.

4. This Crayfish is known to appreciate the finer things in life such as cleared, trenched, and mowed areas that flood for several weeks each wet season and then completely dry up. Procambarus econfinae is the city crustacean version of the city mouse and the country mouse.

5. The areas where Procambarus econfinae is found were very probably not suitable for its habitation before such areas were modified by man.

6. Some 20 or more Florida Crayfish species have only been found in one or two counties. If several of these species became listed and are found to appreciate man's activities as much as Procambarus econfinae, the future development of Florida could be severely hampered.

7. Not only the City of Panama City, but the Florida Department of Transportation, the Bay County Public Works Department, the Bayline Railroad, the Port of Panama City, and the Gulf Power Company have concerns over the handling of this species. In each case, they feel that they and the taxpaying public could be held hostage to an animal that may well not be suffering by man's hand in his developing and maintaining of ditching and cleared areas.

8. The history leading up to the recent City of Panama City Taking Permit is troubling and does not show an expected or acceptable level of respect and cooperation between governmental entities.

9. The listing of Procambarus econfinae and the approval of a Management Plan would place the FFWCC, in effect, in the position of having, on its books the most stringent wetlands rule in the State and perhaps in the Nation. I have noted this to FFWCC personnel and feel that they do not see the connection.

Crayfish live in wet areas (wetlands). There are many species but they are almost impossible to tell apart. They all seem the same when they are underground and each species may or may not have burrows topped by a "crayfish chimney".

If a company or person sees crayfish chimneys on his property, he may have the protected species and may be required to bring in the experts to examine his land and his crayfish. This service would no doubt cost something. If somehow he can prove that he doesn't have

the protected species, he is in good shape. If he does have it, or there is a question as to whether or not he has it, he will have to negotiate with the U.S. Fish and Wildlife Service (FWS) on how he will be able to use his land.

The FFWCC has suggested that because crayfish species are so difficult to tell apart, it may be necessary in certain areas to regard any sign of crayfish as a need to require the use of certain FFWCC regulations.

ATTACHMENT 3.

FLORIDA CRAYFISH LISTS

These three attached Florida Crayfish Lists were compiled from a number of sources, but primarily from:

> Hobbs, H.H.,Jr. The Crayfishes of Florida. Univ. Florida Publication Biological Science Series 3(2) 180 pp + illustrations, 1942.
>
> Hobbs, H.H.,Jr and H.H. Hobbs III, An Illustrated Key to the Crayfish of Florida (Based on First Form Marles), Florida Scientist 54(1), 1991.,
>
> Franz, R., and S.E. Franz, A Review of the Florida Crayfish Fauna With Comments on Nomenclature, Distribution, and Conservation, Florida Scientist 53(4), 1990.
>
> Species and locations discovered after 1990 and nomenclature changes made after that date may not be included.

While all of the information given here has already been presented, it has not been available in a form that makes evident the considerable number of crayfish species in Florida and the large part of those that are found in relatively small areas.

Surely there should be some factual data available that clearly indicates that a species is, in actuality, under duress before a State Agency orders local governments, private landowners, businesses, or individuals to suffer financial losses.

The fact that there is no evidence that the species is under duress is very evident when reading the FFWCC's own recent documents. The incredible spin seen in these documents would have a good chance of convincing any casual reader and even some well informed readers that the crayfish Procambarus econfinae is now or will soon be in trouble due to man's actions.

All of the data that is now available on the species indicates the very opposite. The species is consistently assumed to be a pine flatwoods species, but to my knowledge has never been found in any environment other than in or next to areas which flood periodically and are maintained by man in a cleared state. These suitable areas are usually maintained through mowing and include roadside swales and ditches, powerline rights-of-way, and cleared fields. Also, possibly farmlands that are so contoured as to hold several inches of rainwater from several weeks to several months each year could be suitable for habitation.

All of my efforts to find Procambarus econfinae in flooded pine flatwoods were fruitless except during one instance when I was working in some woods directly across a road from, and connected by culvert to, a flooded open field.

Mankind may have been helping this species with his maintaining of clearings for several hundred years. No doubt fire was the agency that provided the clearing service in prior years.

Some 13 crayfish species are each found in only one county. Seven more species are each found in only two counties.

A grandisement effort on each restricted range species such as that put forward on Procambarus econfinae would be capable of derailing Florida's Strategic Plan for Economic Development.

Those species like Procambarus econfinae that have thrived in man's constructed and maintained stormwater drainage infrastructure and, at the same time, are through some unfortunate circumstances protected by the FFWCC from disturbance by the agencies charged with maintaining that drainage infrastructure, are perfectly positioned to cause governmental inefficiency and distrust between State Agencies.

Number of Florida Crayfish Species and Subspecies by County:

Some Counties May Have a Higher Number of Species Than Noted Here

Escambia	12
Bay	10
Jackson	10
Santa Rosa	10
Liberty	10
Alachua	9
Gulf	9
Holmes	9
Oklaoosa	8
Leon	7
Calhoun	6
Columbia	6
Gadsden	6
Nassau	6
Washington	6
Wakulla	6
Citrus	5
Clay	5
Levy	5
Union	5
Walton	7
Duval	4
Flagler	4
Franklin	4
Hamilton	4
Jefferson	4
Marion	4
Putnam	4
Seminole	4
Baker	3
Gilchrist	3
Hernando	3
Hillsborough	3
Lake	3
Madison	3
St. Johns	3
Suwannee	3
Taylor	3
Bradford	2
Hendry	2
Indian River	2
Lafayette	2
Orange	2
Palm Beach	2
Pasco	2
Pinellas	2
De Soto	2
Polk	2
Sumter	2
Volusia	2
Brevard	1
Broward	1
Charlotte	1
Collier	1
Dade	1
Dixie	1
Glades	1
Hardee	1
Highlands	1
Lee	1
Manatee	1
Martin	1
Monroe	1
Okeechobee	1
Osceola	1
Sarasota	1
St. Lucie	1

Rare Crayfish Species and Subspecies
--- Number of Florida Counties in Geographic Range ---

Name of Species	Number of Counties
Procambarus escambiensis	1
Procambarus econfinae	1
Procambarus latipleurum	1
Procambarus apalachicolae	
Procambarus rathbunae	2
Procambarus shermani	1
Procambarus kilbyi	
Procambarus hubbelli	
Procambarus alleni	
Procambarus geodytes	
Procambarus pygmaeus	
Procambarus rogersi rogersi	1
Procambarus rogersi ochlocknensis	2
Procambarus rogersi campestris	2
Procambarus Rogersi Intergrades	
Procambarus acherontis	1
Procambarus bivittatus	2
Procambarus okaloosae	
Procambarus paeninsulanus	
Procambarus evermanni	
Procambarus fallax	
Procambarus leonensis	
Procambarus pycnogonopodus	
Procambarus spiculifer	
Procambarus versutus	
Procambarus pictus	2
Procambarus youngi	
Procambarus lucifugus lucifugus	
Procambarus lucifugus alachua	1
Procambarus pallidus	
Procambarus seminolae	
Procambarus pubischelae pubischelae	
Procambarus erythrops	1
Procambarus franzi	1
Procambarus orcinus	2
Procambarus milleri	1
Procambarus horsti	
Procambarus leitheuseri	
Procambarus rogersi expletus	1
Procambarus suttkusi	2

Rare Crayfish Species and Subspecies
--- Number of Florida Counties in Geographic Range ---

Name of Species	Number of Counties
Procambarus delicatus	
Procambarus talpoides	
Procambarus clarkii	
Procambarus acutus acutus	
Troglocambarus maclanei	
Cambarellus blacki	1
Cambarellus schmitti	
Cambarus latimanus	
Cambarus floridanus	
Cambarus cryptodytes	
Cambarus diogenes diogenes	
Cambarus pyronotus	1
Faxonella clypeata	
Cambarus striatus	
Fallicambarus byersi	
Fallicambarus fodiens	

Crayfish Species and Subspecies found in Bay County, Florida

Procambarus apalachicolae

Procambarus econfinae

Procambarus rogersi intergrades

Procambarus rogersi rogersi

Procambarus paeninsulanus

Procambarus pycnogonopodus

Procambarus versutus

Procambarus spiculifer

Procambarus pygmaeus

Cambarus diogenes diogenes

ATTACHMENT 4.

ON THE FFWCC POLICIES FOR THE TAKING OF STATE LISTED SPECIES

After studying the attached Scientific Collecting/Research Educational Permit Issuance Policies of the Division of Wildlife of the FFWCC, I must question whether or not there is any objective difference between the three species list.

The most elite list "Endangered Species" does not allow the killing of a species but does allow a long list of activities that would clearly disturb and harass them. This may be much more important to a species than the killing of a few specimens.

The middle list "Threatened Species" does allow the killing of a species in connection with conservation or scientific purposes. This could be anything.

The third list "Species of Special Concern" does not, in reality, differ from the middle list. Each allows the killing of listed species after a completely subjective test is passed. Who could or would say that there is any real difference in these two following tests:

1. A proposed activity will demonstrably not have a negative impact...
2. A proposed activity can be reasonably concluded to not be detrimental...

Because the only real or objective difference in the three lists is the live capture provision of the "Endangered List", I believe that only two lists are needed and that having three State protected lists instead of two is an unneeded and expensive complication.

I would wager that a high percentage of the total funds available for protecting non-game wildlife (other than the manatee) is spent on beaurocratic activities concerning species listing and listing changes.

Due to there being no apparent real differences between the middle list and the third list, I suggest that they be combined with the resultant list requiring some real factual data indicating that the species is, in fact, quite rare and that, in fact, is experiencing a loss of range and/or population.

The FFWCC does not now have such data on Procambarus econfinae, and has acted on pure hearsay as to the animal's natural habitat and its presumed inevitable demise at the hand of man.

It is of great importance that we know where this animal lives. One scientist surmised that the animal usually lived in the flatwoods. He had, in 1938, not found them there and instead had found them in manicured and maintained roadside ditches. Since then, a number of biologists have quoted his guess at where they lived and, as well, only found the species in roadside ditches and various other areas cleared and maintained by man.

ATTACHMENT 5

Results of

Bingham's Crayfish Collecting Trips in

Bay County, Florida

Friday, September 12, 2003

Survey Sites	Results
1. Pond near Bay Dunes Golf Club Maintenance Building.	No crayfish
2. Pond near entrance of Bay Dunes Golf Club.	No crayfish
3. Lake behind Bay Dunes Golf Club. Caught several specimens of a larger crayfish species. Sample #1.	No Procambarus econfinae
4. Highway roadside ditch near entrance to Bay Dunes Golf Club	No crayfish
5. Whitney and Everest Streets	No crayfish
6. John Pitts Road at Olympia	No crayfish
7. John Pitts near Sunwood. Sample #2. Several specimens of a larger crayfish species.	No Procambarus econfinae

8. Nadine Road near Sunwood. Sample #3. Two species of crayfish including Procambarus econfinae. One Form I male of Procambarus econfinae kept for species verification. — Procambarus econfinae

9. Nadine Road - roadside ditch. Sample #4. One crayfish species. — No Procambarus econfinae

10. Flooded flatwoods off of Nadine Road. About one hour spent searching for crayfish in several flooded flatwood areas. No crayfish caught or signs of crayfish seen. — No Crayfish

11. Star Avenue at Nadine Road. Sample #5. Two species of crayfish including Procambarus econfinae. One Form II male of Procambarus econfinae kept for species verification. — Procambarus econfinae

12. Star Avenue at subject powerline crossing. Sample #6. East side of highway. One Form I male of Procambarus econfinae kept for species verification. — Procambarus econfinae

13. Walked east from Star Avenue along subject powerline clearing and past a crossing powerline easement. Sample #7 crayfish — No Procambarus econfinae

14. Idaho Street at Fox Avenue - roadside ditch. Sample #8 crayfish — No Procambarus econfinae

15. Cleared powerline right-of-way crossing of Fox Avenue. Sample #9. One Form I male of Procambarus econfinae kept for species verification. — Procambarus econfinae

16. Further down the cleared powerline right-of-way noted in No. 15 above. Sample #10. One Form I male of Procambarus econfinae kept for species verification. — Procambarus econfinae

17. Subject cleared powerline right-of-way crossing of Star Avenue - west of highway. Sample #11. Two species of crayfish including Procambarus econfinae. One Form II male kept for species verification. Procambarus econfinae

Saturday, September 13, 2003

18. Site in front of the Bay County Jail Annex on Nehi Road. Sample #12. Two species of crayfish including Procambarus econfinae. One Form I male kept for species verification. By far this is the best site surveyed. Procambarus econfinae

19. Flooded flatwoods across the paved entrance road to the Bay County Jail Annex. This area is connected to the previous site by a culvert under the entrance road. All of the Procambarus econfinae specimens seen were within 20 feet of the entrance road. Sample #13. One Form I male of Procambarus econfinae kept for species verification. Procambarus econfinae

20. Ditch crossing of Nehi Road south of Bay County Jail Annex. Sample #14. Two species of crayfish including Procambarus econfinae. One Form I male of Procambarus econfinae kept for species verification. Procambarus econfinae

21. Henderson Road at Hoofprint Road. Sample #15. One female crayfish with young captured and released. No Procambarus econfinae

22. Star Avenue some .3 miles north of subject powerline crossing. Sample #16. Crayfish captured and released. No Procambarus econfinae

23. Short drainage ditch between Nehi Road and Star Avenue.
Sample #17. One Form I male Procambarus econfinae kept for species verification. — Procambarus econfinae

24. Subject powerline crossing at Nehi Road, west of road. Sample #18
One Form I male Procambarus econfinae kept for verification. — Procambarus econfinae

25. Private road off of Nehi Road. Sample #19. Two crayfish species. — No Procambarus econfinae

26. Dirt road road-side ditch north of powerline right-of-way crossing Fox Avenue. Sample #20. Crayfish captured. — No Procambarus econfinae

27. Corner of Pittsburg and Bertha Sts. Sample #21. Crayfish captured. — No Procambarus econfinae

28. Tyndall Parkway at subject powerline right-of-way crossing. Area dry. — No crayfish captured

29. Small stream crossing on Game Farm Road. — No crayfish captured

30. Holding pond on Alva Thomas Road. — No crayfish captured

31. Stream crossing on Alva Thomas Road. — No crayfish captured

32. Road side ditch in front of home on College Station Road. Sample #22
One Form I male of Procambarus econfinae kept for verification. — Procambarus econfinae

33. Farm at south end of College Station Road. — No crayfish captured

34. Ditch crossing at north end of Nehi Road. Crayfish captured. No sample made.

No Procambarus econfinae

35. Stream crossing of Nehi Road.

No crayfish captured

36. Subject powerline right-of-way crossing of Star Avenue (East).

No crayfish captured

37. Subject powerline right-of-way crossing of Star Avenue (West).

No crayfish captured

Notes: Sites 12 and 36 are the same location under differing conditions

Sites 17 and 37 are the same location under differing conditions

ATTACHMENT 6.

SPIN CITY NOTES

There is an old saying that goes like this, "If you cannot convince them with the facts, you can always dazzle them with footwork." If you change the word "footwork" to the word "spin", you get fairly close to what has happened in the recent quest to glorify the subject crayfish. Never in my professional career of 30 years as a practicing ecologist have I ever come across a situation where it is more clear that tremendous amounts of time and effort have been expended on a species that might be doing very well.

Absolutely no data or factual information has yet been presented that points toward a troubled future for Procambarus econfinae. The small amount of data that has been presented (new locations, population numbers) is not conclusive as to how the species is doing, but could be used by some to say and show that every time a reasonable search for this animal is made, it is found in more places. Therefore, it appears to be doing better.

Gross amounts of spin are seen and accepted in politics and advertising. Such spin is not normally seen or accepted in environmental science.

For instance, in the two FFWCC documents "Final Biological Status Report, Panama City Crayfish", and "Draft Management Plan, Panama City Crayfish", it is painfully obvious that the authors take every opportunity to agonize over the worsening situation that P. econfinae finds itself in when there is absolutely no data to back up that position.

ATTACHMENT 7.

THIS PROGRAM SUMMARY PRODUCED

FOR THE

FLORIDA DEPARTMENT OF TRANSPORTATION

BY BINGHAM
Published October 21, 1976

A SUMMARY OF THE ENDANGERED SPECIES PROGRAM IN FLORIDA

OCTOBER 1, 1976

FRASIER O. BINGHAM, PH.D.

FLORIDA DEPARTMENT OF TRANSPORTATION

BUREAU OF PLANNING

TALLAHASSEE, FLORIDA

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ENCLOSURES

1. Federal List (Proposed) of Endangered Plants in Florida
2. Federal List (Proposed) of Threatened Plants in Florida
3. Federal List of Endangered or Threatened Animals as of September 26, 1975
4. Federal List of Animals Determined to be Endangered or Threatened Subsequent to September 26, 1975
5. Florida List of Endangered Animals
6. Florida List of Threatened Animals
7. Endangered Species Act of 1973
8. Notice of Critical Habitat Areas
9. Proposed Determinations of Critical Habitat for the American Crocodile and the Florida Manatee
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11. Proposed Determination of Critical Habitat for the Cape Sable Sparrow
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13. Briefing Prepared for Mr. Tiemann (FHWA)

TOPIC I

Official Federal and State Lists of Endangered of Threatened Plants and Animals in Florida

A. Federal

1. Plants

a. Endangered: Enclosure 1.
b. Threatened: Enclosure 2.

2. Animals

a. Endangered or Threatened as of September 26, 1975 - Enclosure 3.
b. Endangered or Threatened determinations subsequent to September 26, 1975 - Enclosure 4.

B. Florida

1. Plants

a. Endangered: No List
b. Threatened: No List

2. Animals

a. Endangered: Enclosure 5.
b. Threatened: Enclosure 6.

Discussion of the various lists:-

1. Federal Endangered Plant List:

This is a published list of plants proposed for endangered designation. The listed species are not yet officially designated as being Endangered.

2. Federal Threatened Plant List:

This is a published list of plants identified by the Smithsonian Institution as being Threatened or Endangered species. Many of the plants given a status of Endangered in this report were subsequently proposed for official Endangered designation in enclosure one. The species given a status of Threatened in this list have not yet been proposed, by the Department of Interior, for official designation.

3. Federal Endangered or Threatened Animals List:

This list contains all of the species of animals officially determined by the Federal government to be Endangered or Threatened as of September 26, 1975. Almost all of the species listed are designated as Endangered.

4. Recent Federal Activity concerning Endangered or Threatened animal lists:

Enclosure four contains several new official determinations of Endangered or Threatened status for animals. It is notable that, for the first time, insects (butterflys) and snails are being included. Two butterflys and one snail from Florida are mentioned.

5. Florida Endangered Animals List:

Many of these species are on Federal lists.

6. Florida Threatened Animals List:

A few of the species are on Federal lists.

Note: We have included only official governmental lists promulgated by the Federal Departments of the Interior and Commerce, and the Florida Game and Fresh Water Fish Commission. Many other lists have been published but have no official standing.

TOPIC II

Extent of Protection, Under the Law, of Listed Plans and Animals

A. Federal

1. Plants

a. Endangered Species

(1) It is unlawful to import or export any such species from the U.S.

(2) It is unlawful to deliver, receive, carry, transport or ship in interstate or foreign commerce in the course of a commercial activity, any such species.

(3) It is unlawful to sell or offer for sale in interstate or foreign commerce any such species.

(4) Such protection as might be provided by Section 7 (Interagency Cooperation) of the Act. (i.e. Area of Critical Habitat)

b. Threatened Species

(1) It is unlawful to violate any regulation pertaining to listed species. No such regulations are known to us at this time, but shall be issued by the Secretary of the Interior as he deems necessary.

Note: At this time there are no restrictions, in Florida, upon the "taking" of an Endangered or Threatened plants; the intrastate sale of such plants; or the interstate movement of such plants for non-commercial purposes.

2. Animals

a. Endangered Species

(1) It is unlawful to import or export any such species from the U.S.

(2) It is unlawful to "take" a certain few species listed in Appendix I to the Convention. These, in Florida, are: Beaver, Florida Puma, West Indian Manatee, Frigate Bird, Southern Bald Eagle, American Peregrine Falcon, Mississippi Sandhill Crane, American Alligator, Published FR 41 (117)

(3) It is unlawful to deliver, receive, carry, transport, or ship in interstate of foreign commerce in the course of a commercial activity, any such species.

(4) It is unlawful to sell or offer for sale in interstate or foreign commerce any such species.

Note: The "taking" of resident Endangered species or Threatened species other than those listed in (2) above is not unlawful unless a state law provides such protection, and a State-Federal Cooperative agreement is effected. Federal protection from taking shall only be to such extent as state law. A State-Federal cooperative agreement has been effected for Endangered and Threatened species of fish or wildlife but not for plants.

B. Florida

1. Plants

a. Endangered Species - No List - No Protection

b. Threatened Species - No List - No Protection

2. Animals

a. Endangered Species:
No person shall sell or offer for sale any Endangered species. No person shall take or posses any Endangered species except as authorized by permit.

b. Threatened Species:
No person shall sell or offer for sale any Threatened species except as authorized by permit.
No person shall take or possess Threatened species except as authorized by permit.

Note: The Florida Department of Transportation may not ever become involved in legal proceedings stemming from the breaking of State or Federal endangered species laws if land clearing operations do not actually kill designated animal species or molest their nests or eggs.

TOPIC III

Extent of Protection through Agency and Public Comment in Environmental Documentation

A. Plants

1. Endangered:
While no laws, rules, or regulations (either Federal or State) protect Endnagered plant species in Florida, consideration of such species in the environmental impact statement is required of the Florida DOT pursuant to FHPM 7-7-2 as related below.

> "Impact on the nesting ground of an endangered species would be significant while a similar impact on the nesting grounds of a species which is in abundance may not be significant".

We presume that an area of reproduction of an Endangered plant species would be given the same consideration provided an Endangered animals nesting ground.

Department of Transportation projects that will obviously have some impact on the area of reproduction of officially designated Endangered plant species will require environmental documentation in the form of an EIS.

Full disclosure of proposed disturbance to the Endangered species area of reproduction will probably attract negative comment from several Federal and State agencies and some public groups as well.

It is of interest that while Florida will probably contain about 78 Endangered plant species, most states will contain only a few.

2. Threatened:
No mention of Threatened species is made in FHPM 7-7-2.

B. Animals

Comment on Endangered animal species (pursuant to FHPM 7-7-2) in the environmental impact statement notifies concerned governmental and public groups of those species involvement in a particular project. A negative reaction of such groups can lead to project modification and possibly to some delay.

Summary: Transportation projects are not likely subjects for delay or modification through suit or threat of legal action based on Federal or State laws protecting Endangered or Threatened species. Negative comment in a EIS concerning a projects threat to the welfare of such a species, however, can be a potent source for problems in project location and design.

PLANT SPECIES IN FLORIDA PROPOSED FOR ENDANGERED DESIGNATION

FAMILY	SPECIFIC NAME	COMMON NAME
ACANTHACEAE	Justicia cooleyi	Cooley's Water-willow
	Justicia crassifolia	Thick-Leaved Water-willow
ANNONACEAE	Asimina tetramera	Pawpaw
APIACEAE	Oxypolis greenmanii	Greenman's Dropwort
	Sium floridanum	Florida Water-parsnip
ARECACEAE	Roystonea elata	Florida royal Palm
ASTERACEAE	Aster pinifolius	Aster, (unnamed)
	Balduina atropupurea	(n.c.n.)
	Liatris ohlingerae	Blazing Star, (unnamed)
	Liatris provincialis	Blazing Star
BRASSICACEAE	Warea sessifolia	(n.c.n.)
CACTACEAE	Cereus eriophorus	(n.c.n.)
	Cereus gracilis	Original Prickly apple
	Cereus gracilis	Simpson's Prickly apple
	Cereus robinii	Tree cactus
CAMPANULACEAE	Campanula robinsiae	Robins' Bellflower
CARYOPHYLLACEAE	Paronychia chartacea	Whitlow-wort, (unnamed)
	Paronychia rugelii	Whitlow-wort, (unnamed)
	Silene polypetala	(n.c.n.)
CERATOPHYLLACEAE	Ceratophyllum floridanum	Florida Hornwort
CYCADACEAE	Zamia integrifolia	Coontie
ERICACEAE	Monotropis reynoldsiae	Sweet Pinesap
EUPHORBIACEAE	Chamaesyce (Euphorbia) deltoidea ssp. serpyllum	Spurge, (unnamed)
	Croton elliottii	(n.c.n.)
	Croton glandulosus var. simpsonii	(n.c.n.)
	Euphorbia garberi	Spurge (unnamed)
FABACEAE	Baptisia riparia	Wild Indigo, (unnamed)
	Cassia keyensis	Florida Keys Senna
	Centrosema arenicola	Butterflypea, (unnamed)
	Galactia pinetorum	Milkpea
	Vicia ocalensis	Ocala Vetch
GENTIANACEAE	Gentiana pennelliana	Gentian (unnamed)
HYPERICACEAE	Hypericum cumulicola	St. John's-wort, (unnamed)

FAMILY	SPECIFIC NAME	COMMON NAME
LAMIACEAE	Conradina brevifolia	(n.c.n.)
	Conradina glabra	(n.c.n.)
	Dicerandra frutescens	(n.c.n.)
	Dicerandra immaculata	(n.c.n.)
	Hedeoma graveolens	Mock pennyroyal, (unnamed)
	Macbridea alba	(n.c.n.)
	Salvia blodgettii	Blodgett's Sage
LENTIBULARIACEAE	Pinguicula ionantha	Butterwort, (unnamed)
LILIACEAE	Harperocallis flava	Harper's Beauty
	Nolina atopocarpa	Beargrass, (unnamed)
	Nolina brittoniana	Beargrass, (unnamed)
LINACEAE	Linum arenicola	Sand Flax
	Linum carteri var. carteri	Flax, (unnamed)
	Linum carteri var. smallii	Flax, (unnamed)
	Linum westii	West's Flax
LOGANIACEAE	Spigelia gentianoids	Pinkroot, (unnamed)
	Spigelia loganioides	Pinkroot, (unnamed)
LYTHRACEAE	Cuphea aspera	(n.c.n.)
MELASTOMATACEAE	Rhexia parviflora	Meadowbeauty, (unnamed)
OLEACEAE	Forestiera segregata var. pinetorum	(n.c.n.)
ORCHIDACEAE	Spiranthes lanceolata var. paludicola	Ladies'-tresses, (unnamed)
	Triphora craigheadii	Nodding-caps, (unnamed)
	Triphora latifolia	Nodding-caps, (unnamed)
PLUMBAGINACEAE	Limonium carolinianum var. augustifolium	Sea-lavender, (unnamed)
POACEAE	Andropogon arctatus	Beard grass, (unnamed)
	Aristida floridana	Triple-awned grass, (unnamed)
	Calamovilfa curtissii	Sand grass, (unnamed)
	Digitaria pauciflora	Finger grass, (unnamed)
	Schizachyrium rhizomatum	(n.c.n.)
	Tripsacum floridanum	Gamma grass, (unnamed)
POLYCALACEAE	Polygala lewtonii	(n.c.n.)
POLYGONACEAE	Polygonella ciliata	Jointweed, (unnamed)
RANUNCULACEAE	Aquilegia canadensis	Wild columbine, (unnamed)
	Clematis micrantha	Old-man's beard

FAMILY	SPECIFIC NAME	COMMON NAME
ROSACEAE	*Prunus geniculata*	Scrub Plum
RUBIACEAE	*Houstonia nigricans* var. *pulvinata*	Diamondflowers, (unnamed)
SALICACEAE	*Salix floridana*	Florida Willow
SAXIFRAGACEAE	*Ribes echinellum*	Florida Gooseberry
SCHIZAEACEAE	*Schizaea germanii*	Curly grass fern, (unnamed)
SCROPHULARIACEAE	*Agalinis (Gerardia) stenophylla*	False foxglove, (unnamed)
	Lindernia saxicola	False pimpernel, (unnamed)
SOLANACEAE	*Solanum bahamense*	Nightshade, (unnamed)
TAXACEAE	*Taxus floridana*	Florida Yew
	Torreya taxifolia	Stinking-cedar
VERBENACEAE	*Verbena tampensis*	Vervain, (unnamed)

Enclosure 5

LIST OF ENDANGERED SPECIES
PUBLISHED IN THE
WILDLIFE CODE OF THE STATE OF FLORIDA
EFFECTIVE JULY 1975
GAME AND FRESH WATER FISH COMMISSION

Endangered species -- A species which is in danger of extinction throughout all or a significant portion of its range in the State due to (1) destruction, drastic modification or severe curtailment of habitat, or (2) its over utilization for commercial or sporting purposes, or (3) effect of disease or pollution, or (4) other natural or man-made factors:

pine barrens tree frog (Hyla andersoni)
green turtle (Chelonia mydas mydas)
hawksbill turtle (Eretmochelys imbricata imbricata)
ridley turtle (Lepidochelys kempi)
salt marsh snake (Natrix fasciata taeniata)
short-tailed snake (Stilostoma extenuatum)
crocodile (Crocodylus acutus)
wood stork (Mycteria americana)
everglade kite (Rostrhamus sociabilis plumbeus)
snowy plover (Charadrius alexandrinus tenuirostris)
ivory-billed woodpecker (Camphephilus principalis)
american peregrine falcon (Falco peregrinus anatum)
red cockaded woodpecker (Dendrocopus borealis hylonomus)
bachmans warbler (Vermivora bachmanii)
kirtlands warbler (Dendroica kirtlandii)
grasshopper sparrow (Ammodramus savannarum floridanus)
dusky seaside sparrow (Ammospiza maritima nigrescens)
cape sable seaside sparrow (Ammospiza maritima mirabilis)
gray bat (Myotis grisescens)
indiana bat (Myotis sodalis)
everglades fox squirrel (Sciurus niger avicennia)
goffs pocket gopher (Geomys pinetis goffi)
cudjoe key rice rat (Orzomys ssp)
pallid beach mouse (Peromyscus polionotus decoloratus)
key largo cotton mouse (Peramyseus gossypinus allapticola)
key large wood rat (Neotoma floridana smalli)
panther (Felis concolor coryi)
key deer (Odocoileus virginianus calvium)

Enclosure 6

LIST OF THREATENED SPECIES
PUBLISHED IN THE
WILDLIFE CODE OF THE STATE OF FLORIDA
EFFECTIVE JULY 1975
GAME AND FRESH WATER FISH COMMISSION

Threatened species -- A species which may become an endangered species within the foreseeable future in all or a significant portion of its range in the State due to (1) destruction, drastic modification or severe curtailment of habitat, or (2) its over utilization for commercial or sporting purposes, or (3) effect of disease or pollution, or (4) other natural or man-made factors:

okaloosa darter (Etheostoma okaloosae)
shortnose sturgeon (Acipenser brevirostrum)
suwannee bass (Micropterus notius)
key mud turtle (Kinosternon bauri bauri)
suwannee turtle (Chrysemys concinnia suwanniensis)
loggerhead turtle (Caretta caretta caretta)
gopher turtle (Gopherus polyphemus)
key mole skink (Eumeces egreginus egreginus)
sand skink (Neoseps reynoldsi)
big pine key ringneck snake (Diadophis punctatus acricus)
rosy rat snake (Elaphe guttata rosacea)
miami black-headed snake (Tantilla oolitica)
indigo snake (Drymarchon corais couperi)
brown snake (Storeria dekayi victa) Lower Keys only
ribbon snake (Thamnophis sauritus sackenil) Lower Keys only
alligator (Alligator mississippiensis)
magnificent frigate bird (Fregata magnificens rothschildi)
osprey (Pandion haliaetus carolinensis)
southeastern kestrel (Falco sparverius paulus)
oyster catcher (Maemotopus palliatus)
roseate tern (Sterna dougallii)
least tern (Sterna albifrons)
white-crowned pigeon (Columba leucocephala)
scrub jay (Aphelocoma coerulescens coerulescens)
louisiana seaside sparrow (Ammospiza maritima fisheri)
roseate spoonbill (Ajaia ajaja)
mangrove cuckoo (Coccyzus minor nesiotes)
bald eagle (Halieetus leucocephalus)
brown pelican (Pelecanus occidentalis)
caracara (Caracara cheriway)
great white heron (Ardea occidentalis)
arctic penegrine falcon (Falco peregrinus turdrius)
sandhill crane (Grus canadensis)
short-tail hawk (Buteo brachyurus)
shermans fox squirrel (Sciurus niger shermani)
choctawhatchee beach mouse (Peromyscus polionotus allophrys)
perdido bay beach mouse (Peromyscus polionotus trissyllepsis)
florida mouse (Peromyseus floridanus)
keys cotton rat (Sigmodon hispidus exputus)
key vaca racoon (Procyon lotor amspicatus)
manatee (Trichechus manatus latirostris)
everglades mink (Mustela vison evergaldensis)
weasel (Mustela frenata peninsulae)
black bear (Ursus americanus floridanus)

ATTACHMENT 8.

The Panama City Crayfish Take Permit
Permit No. WX 03132 Issued 16 April 2003

This permit was issued at a time when the State did not have any data to back up its contention that the subject species has been, is now, or will ever suffer range or population shrinkage due to the production or maintenance of man's public and private infrastructure.

Based on nothing more than hearsay, speculation, and guesswork, requirements have been placed on a public entity funded through local taxes and fees, to avoid a certain crayfish. This crayfish being one of at least 10 crayfish species thus far identified in Bay County and presenting the very real problem of species identification.

What a can of worms/crayfish this is! It is hard to imagine the extent of the loss of productivity that could result from the required inspection for crayfish before any State, County, or City roadside ditch is cleaned out or re-worked.

In the FFWCC's documents there is noted that the failure to find the crayfish at a location does not mean that it is not there and that several attempts to find it are needed with those being in dry and wet weather.

The specter of certain biologists receiving notices every day from anyone in the Panama City wishing to clean out his stormwater ditch is mind boggling. The biologist would inspect the ditch in question and find:

1. Juvenile crayfish of an unidentified and therefore undetermined species.

2. A dry condition with crayfish burrows but no crayfish.

3. A dead crayfish of the subject species but no living specimens.

4. An adult female that appears to be the subject species that is very badly scared and must be sent to the University of Florida for identification.

5. An adult Form II male that may be the subject species

6. An adult Form I male with broken or disfigured first pleopods.

7. Identifiable adults of the subject species. In this case, the scientist would be required to do all of the following:

    A. Contact the ditch owner and determine his ditch clearing schedule. (This could change due to a variety of reasons).

    B. Tell the ditch owner that the ditch clearing operation must take as little time as possible to complete.

    C. Inspect the subject ditch on the day before the cleaning work is to begin and collect as many of the crayfish as is possible. If the ditch contains several inches of water, he may collect several hundred and if the ditch is dry, he may collect none or only a few.

    D. Provide the crayfish with a reasonably safe holding site. The crayfish that have been gathered from the various ditches must be kept separate so they can be returned to their home ditch.

    E. Expect losses due to cannibalism during shedding. These animals cannot control the timing of their shedding and they will be killed and eaten by other captives during this period. The longer that the captivity lasts, the greater the death toll.

F. Be very careful (meticulous) not to expose the captives from different locations to each other or the water that has touched another group. The several crayfish diseases, mostly fungal, could easily be spread at the holding site. Such diseases could also be spread by using non-sterile digging, netting, or transporting equipment.

G. Return the survivors to their home locations which may be:
    1. Covered with several inches of water
    2. Muddy
    3. Dry

If the return area is either muddy or dry, the returned specimens will have little if any chance of surviving.

The monitoring of sites where crayfish have been re-introduced will not produce definitive data because one will not know if the scientist's efforts are to blame for the loss of a local population, or responsible for the survival of a local population.

I believe that this entire Procambarus econfinae effort is misguided and I request that FFWCC Permit No. WX03132 Issued 16 April 2003 to Andy Barth of Biological Research Associates, Inc. be canceled and become null and void as soon as is possible. This would release the City of Panama City from the FFWCC's edict that the City carry out underground directional drilling to avoid the crayfish Procambarus econfinae, in a 25 foot wide strip of the 145 foot wide cleared powerline easement. The City would also be required to hire local biologists to capture, hold, release and monitor crayfish specimens during the course of, and continuing for a considerable period after, the construction of a badly needed new sewer main in Panama City, Florida.

PERMIT

Issued Under Authority of the Wildlife Code of the State of Florida
(Title 68A, Florida Administrative Code) by the

STATE OF FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
Division of Wildlife, 620 South Meridian Street, Tallahassee, FL 32399-1600, 850/488 3831

Permit No. WX03132 **Issuance Date** 16 April 2003 **Expiration Date** 30 April 2005
Permit Type Special Purpose **Specific Rule Authority** 68A-9.002, 68A-25.002 & 68A-27.005
Permittee Andy Barth **Affiliation** Biological Research Associates, Inc.
Phone no. (850) 769-2000 433 Harrison Avenue
Panama City, FL 32401
Signature _____
*Signature indicates acceptance and understanding of the provisions/conditions listed below. Please return a signed copy to this office.

Pursuant to Rules 68A-9.002, 68A-25.002 & 68A-27.005, F.A.C., this permit authorizes the above named permittee to "take" Panama City crayfish (*Procambarus [Leconticambarus] ecofinae*) in Panama City, Bay County, Florida. It is our intent that "take" shall be limited to incidental molestation through disturbance, capture and relocation associated with construction activities subject to the following provisions/conditions.

Provisions/Conditions:

1. The Permittee is authorized to "take" Panama City crayfish (PCC) (*Procambarus [Leconticambarus] ecofinae*) associated with installation of a wastewater pipeline along 11.17 miles within the pre-defined construction zone of the Gulf Power right-of-way (T3S,R13W,S10) in Panama City, Bay County, Florida as described in the Permittee's March 22, 2002 original application and supplemental materials dated March 28, 2002, September 17, 2002, November 5, 2002 and March 12, 2003, herein incorporated as referenced.

2. The Permittee must monitor for the presence of PCC by surveying areas which contain any of the 8 known soil types: Leon Sand (Map Unit 13), Pamlico-Dorovan Complex (Map Unit 22), Rutledge Sand (Map Unit 29), Osier Sand (Map Unit 31), Plummer Sand (Map Unit 32), Rutledge-Pamlico Complex (Map Unit 51), Albany Sand (Map Unit 1) and Pelham Sand (Map Unit 33) (the latter two were not included in the application, but must be surveyed) prior to commencing construction. The Permittee must adhere to the approved monitoring protocol as written on page 2 and 3 of the March 12, 2003 application.

3. Upon completion of monitoring the Permittee is authorized to perform the following construction activities:
   a. *Directional drill* at a depth of 6' at the two sites outlined in yellow on the enclosed project site maps. A silt fenced will be erected to preclude intrusion by mechanized vehicles,
   b. *Trench and relocate* at the two sites outlined in orange (see site map). The Permittee shall survey/monitor the areas prior to commencing construction. Any encountered crayfish may be temporarily possessed for collection of data and release immediately into suitable habitat beyond the construction zone. Said relocation shall occur via the open water or dry condition protocol as defined in the Permittee's March 12, 2003 supplemental application.
   c. *Trench without relocation* along the areas outlined in blue (see site map).

4. The Permittee may collect voucher specimens as follows: a) if the population at a site is 20 or more crayfish, up to 2 crayfish from a directional drill site and up to 2 from a trench/relocation site may be collected for a maximum of 4 specimens, b) if the population at a site is fewer than 20 but more than 10 crayfish, one crayfish from a directional drill site and one crayfish from a trench/relocation site may be collected for a maximum of 2 specimens, and c) if the population at a site is fewer than 10, no vouchering shall occur. Voucher specimens will be deposited at the Florida Museum of Natural History in Gainesville, Alachua County Florida, per the Permittee's March 12, 2003 application.

5. Any other form of "take" (i.e., injury or death) shall be reported immediately by the Permittee to the Commission's Protected Species Permit Coordinator at (850) 921-5990 or by fax at (850) 921-1847, within 24 hours.

6. This permit does not authorize access to any public or private properties. Any required permission

PERMIT

Permit no. WX03132

Provisions/Conditions: Continued

accordingly must be secured from the appropriate landholders prior to initiating any work on those properties.

7. The permitted activities must also be federally permitted/authorized pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531). A copy of any such federal permit must be provided this office before executing this permit.

8. This permit is subject to revocation at any time pursuant to Chapter 120, Florida Statutes. It is nontransferable and must be readily available for inspection at all times while engaging in the permitted activities. Other qualified personnel may assist in the permitted activities in the absence of the Permittee's direct supervision, when those assistants are designated via letter from the Permittee to each designee, with this office provided a copy of such letter(s).

9. A progress report detailing the results of each quarterly survey must be submitted within 30 days subsequent to survey completion, commencing August 30, 2003. An annual report must be submitted by April 14, 2004. A final report detailing all activities engaged in pursuant to this permit must be submitted within 90 days subsequent to permit expiration or upon application for permit renewal, whichever is precedent. Copies of any other reports or publications, which result from the work, must also be provided upon their availability. Requests for permit renewal should be submitted at least 45 days prior to the time it is needed.

Kenneth D. Haddad
Executive Director

By: [signature] for
Bradley J. Gruver, Acting Chief
Bureau Wildlife Diversity Conservation
Division of Wildlife

W1067/BJG/atw
LIC 6-1
WX03132.per

cc: Northwest Region

ATTACHMENT 9.

Procambarus econfinae and the

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (FWS) is deeply engaged in the quest for the glorification of P. econfinae. The FWS indirectly financed the Keppner's study of the species. They are now ready to aid the State of Florida in protecting the species with their Candidate Conservation Agreements (CCA) Program. This program appears to me to allow the Federal Government to begin restricting land use on non-federal lands without actually Federally listing a species. This prospect is frightening to me.

I believe that the FWS's concern for P. econfinae is linked to the U.S. Corps of Engineers recent loss of jurisdiction of isolated wetlands. This crayfish could restore that lost Corps of Engineers power with a like FWS power. In my estimation, the FWS is waiting for P. econfinae to be bumped up the ladder of State lists before they begin using their CCA Program with the crayfish.

See attached U.S. Fish and Wildlife Service overview of Candidate Conservation Agreements.

U.S. Fish & Wildlife Service

Draft Candidate Conservation Agreeements with Assurances Handbook

Search

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Partners in Conservation

Questions?

Endangered Species Program home page

U.S. Fish & Wildlife Service home page

(Please note: To view PDF documents, you may need to download and install the Adobe Acrobat Reader, free from Adobe, Inc.)

Handbook text

Appendices:

- 1: Candidate Conservation Agreements with Assurances Final Policy
- 2: List of Definitions
- 3: Template Candidate Conservation Agreement with Standard Language
- 4: Federal Fish and Wildlife Permit Application (Form 3-200.54)
- 5: Example Federal Register Notice of Permit Application
- 6: NEPA Screening Form for Candidate Conservation Agreements with Assurances
- 7: Freedom of Information Act and Privacy Act Guidelines
- 8: Addendum to the HCP Handbook (5-point policy)
- 9: Candidate Conservation Agreements with Assurances Final Regulations with Correction
- 10: Structuring the CCAA Figures
- 11: Example Certificate of Inclusion
- 12: List of FWS Washington D.C. and Regional Offices
- 13: Response to Public Comments on Amending General Permitting Regulations

Frasier - web address to download from. Pk

Candidate Conservation Agreements With Assurances For Non-Federal Property Owners

What is a candidate species?
Candidate species are plants and animals for which the Fish and Wildlife Service (Service) has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. The National Marine Fisheries Service (NMFS), which has jurisdiction over most marine species, defines candidate species more broadly to include species whose status is of concern but more information is needed before they can be proposed for listing.

What are Candidate Conservation Agreements?
Candidate Conservation Agreements are formal agreements between the Service and one or more parties to address the conservation needs of proposed or candidate species, or species likely to become candidates, before they become listed as endangered or threatened. The participants voluntarily commit to implementing specific actions that will remove or reduce the threats to these species, thereby contributing to stabilizing or restoring the species so that listing is no longer necessary. The Service has entered into many Candidate Conservation Agreements over the years, primarily with other Federal agencies, State and local agencies, and conservation organizations, such as The Nature Conservancy. Some of these have successfully removed threats and listing was avoided.

What are Candidate Conservation Agreements with Assurances?
Conservation of fish and wildlife resources on private lands is critical to maintaining our Nation's biodiversity. However, private property owners may face land use restrictions if species found on their lands are listed under the ESA in the future. The potential for future land use restrictions has led some property owners to manage their lands to prevent or discourage colonization of their property by these species. One incentive property owners need to voluntarily promote candidate conservation on their lands and waters is future regulatory certainty. Therefore, the Service and NMFS have finalized a policy to establish standards and procedures for developing Candidate Conservation Agreements with Assurances for private and other non-Federal property owners. This final policy and associated regulations were published in the *Federal Register* on June 17, 1999.

This new approach to Candidate Conservation Agreements provides non-Federal property owners who voluntarily agree to manage their lands or waters to remove threats to candidate or proposed species assurances that their conservation efforts will not result in future regulatory obligations in excess of those they agree to at the time they enter into the Agreement. The Service would provide technical assistance in the development of these Agreements. Property owners may protect and enhance existing populations and habitats, restore degraded habitat, create new habitat, augment existing populations, restore historic populations, or undertake other activities on their lands to improve the status of candidate or proposed species. The management activities included in the Agreement must significantly contribute to elimination of the need to list the target species. Although a single property owner's activities alone may not be sufficient to eliminate the need to list, the activities, if conducted by other property owners on other necessary properties throughout the range of the species, must be sufficient to eliminate the need to list.

In return for the participant's proactive management, the Service and NMFS provide take authorization through the section 10(a)(1)(A) process of the ESA, which authorizes issuance of permits that will enhance the survival of the species. The permit would allow participants to take individuals or modify habitat to return population levels and habitat conditions to those agreed upon and specified in the Agreement.

What species can be included in a Candidate Conservation Agreement with Assurances?
Candidate Conservation Agreements may include plants and animals that have been proposed for listing or are candidates for listing. Species that are likely to become candidate or proposed species in the near future may also be included in an Agreement.

In a Candidate Conservation Agreement with Assurances, what benefits must the species receive?
The ultimate goal of Candidate Conservation Agreements is to remove enough threats to the target species to eliminate the need for protection under the ESA. Before entering into a Candidate Conservation Agreement and providing regulatory assurances, the Service must reasonably expect and make a written finding that the species included in the Agreement will receive a sufficient conservation benefit from the activities conducted under the Agreement. "Sufficient conservation benefit" means that the management actions to be taken would remove the need to list the covered species, when combined with actions carried out on other necessary properties. "Other necessary properties" are those on which conservation measures would have to be implemented in order to preclude or remove any need to list the covered species.

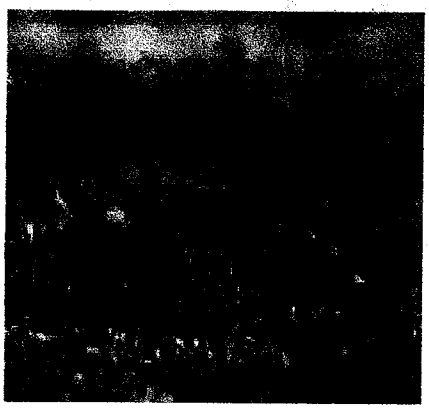
Conservation benefits may include reduction of habitat fragmentation rates, restoration or enhancement of habitats, increase in habitat connectivity, maintenance or increase of population numbers or distribution, reduction of the effects of catastrophic events, establishment of buffers for protected areas, and areas to test and develop new and innovative conservation strategies. Recognizing that while a species is a candidate, a property owner is under no obligation to avoid take, the assessment of benefits would include consideration for what the property owner agrees *not* to do as well as any enhancement measures he or she agrees to undertake. If the Service and the property owner cannot agree on what constitutes benefits, the Service would not enter into the Agreement.

What assurances does the property owner receive?
The Service will provide assurances that, in the event a species covered in the Agreement is subsequently listed as endangered or threatened, the Service will not assert additional restrictions or require additional actions above those the property owner voluntarily committed to in the Agreement. At the time the parties enter into the Agreement, the Service would issue an enhancement of survival permit under section 10(a)(1)(A) of the ESA authorizing the property owner to take individuals or modify habitat to return the property to the conditions agreed upon and specified in the Agreement, provided that the take is at a level consistent with the overall goal of precluding the need to list. The effective date on the permit would be tied to the date any covered species becomes listed.

What must the Candidate Conservation Agreement with Assurances include?
The Candidate Conservation Agreement must include:

- a description of the population levels (if available or determinable) of the covered species existing at the time the parties negotiate the Agreement; the existing habitat characteristics that sustain any current, permanent, or seasonal use by the covered species on lands or waters owned by the property owner;

- a description of the conservation measures that the property owner is willing to undertake to conserve the species covered by the Agreement;



The lesser prairie-chicken is a candidate species that will benefit from several Candidate Conservation Agreements under development in Colorado, Kansas, New Mexico, Oklahoma and Texas. Photo by John Shackford

- an estimate of the expected conservation benefits as a result of conservation measures, and the conditions that the property owner agrees to maintain;

- assurances that the Service will not require additional conservation measures or impose additional take restrictions beyond those agreed to if a covered species is listed in the future;

- a monitoring provision that may include measuring and reporting progress in implementation of the conservation measures described above and changes in habitat conditions and the species' status resulting from the measures; and

- a notification requirement, to provide the Service or appropriate State agencies with a reasonable opportunity to rescue individuals of the covered species before any authorized take occurs.

Who can participate in a Candidate Conservation Agreement with Assurances?
A Candidate Conservation Agreement with Assurances will involve the Service, one or more non-Federal property owners, and possibly other cooperators. State fish and wildlife agencies, which have primary jurisdiction over species that are not federally listed, may be a cooperator in any Candidate Conservation Agreement. Other potential cooperators include neighboring property owners, State or local agencies, Tribal governments, or Federal property owners. Only non-Federal property owners may receive regulatory assurances under the Agreement.

Will there be any public notification of Candidate Conservation Agreements With Assurances?
As with other section 10 permits, the Service will publish a notice in the *Federal Register* when it receives the permit application. The Service will announce receipt and availability of the application and Agreement and will accept and consider comments from the public before making a final decision on issuance of the permit.

What if I sell my land? Is the CCAA transferable?
If a property owner who is party to a Candidate Conservation Agreement with Assurances transfers ownership of the lands included in the Agreement, the Service will regard the new owner as having the same rights with respect to the subject lands as the original property owner if the new property owner agrees to become part of the original Agreement.

Whom should I contact to initiate a Candidate Conservation Agreement?
Interested parties should contact the nearest Fish and Wildlife Service Field Office in their State to discuss potential cooperative opportunities. For information on the final policy and regulations, contact our Headquarters Office at the address below. More information and office addresses can also be found by visiting the Service's website at *http://www.fws.gov*.

U. S. Fish and Wildlife Service
Endangered Species Program
4401 N. Fairfax Drive, Room 420
Arlington, VA 22203
703/358 2105
http://endangered.fws.gov
February 2002

ATTACHMENT 10.

About the Petitioner

Dr. Frasier O. Bingham graduated from Auburn University in Education in 1962; from Florida State University in Marine Biology in 1969; and the University of Miami Institute of Marine and Atmospheric Sciences in Marine Ecology in 1973.

He was employed by the Florida Department of Transportation as its State Consulting Ecologist. He was the Coordinator of a Florida Board of Regents Research Grants Program and headed up several environmental efforts of BCM Engineers, Inc., a firm with nationwide operations.

Dr. Bingham has owned and operated his small environmental consulting firm, Bingham Environmental, in Tallahassee, Florida, since 1990.

Dr. Bingham does not claim to be an expert in any aspect of crayfish systematics or ecology

ABOUT THE FFWCC

Even though my entrance into the P. econfinae arena was, more than likely, not a happy occasion for the contingent of P. econfinae advocates, I have always found them to be very friendly, professional, and helpful.

ATTACHMENT 11.

THE ASSIGNED FFWCC Biological Review Panel

Attached are the four written responses received by the FFWCC from its appointed five member review panel for Procambarus econfinae.

My key concerns are as follows:

1. Why were there no questions from the panel?

2. Because support for the staff finding was unanimous, I wonder "how common is non-support for the staff finding"?

3. Why was no concern for costs to and disruption of the local economy shown?

4. The panel seemed to admire the considerable body of work by the Keppners, as do I, but did not notice that no real, or compelling data for State protection was presented.

5. Do the members of the review panel have anything to gain or loose due to their support of the staff?

6. Would one expect persons who serve as Chairmen of the Florida Committee on Rare and Endangered Plants and Animals to ever agree that a plant or animal should not be listed or should not be bumped up the hierarchy of lists?

Due to the background of the appointed Review Panel, I believe that a situation exists that is the opposite of "Conflict of Interest" and this could be labeled a preponderance of bias (at best) or a preponderance of prejudice (at worst) with neither being worthwhile.

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

July 22, 2003

Dr. Frazier Bingham, Ph.D.
1862 Witchtree Acres
Tallahassee, FL 32312

Dear Dr. Bingham:

Copies of the evaluations provided by the Biological Review Panel for the Preliminary Biological Status Report for the Panama City crayfish are enclosed. Please call Dr. Brad Gruver at 488-3831 if you have questions or need more information.

Sincerely,

Jim Feiertag, Assistant Chief
Bureau of Wildlife Diversity Conservation

JAF/djw
\\Wildnet\BWDC\Bingham_ltr.doc
FWC 1-3-4
Enclosures

cc: Dr. Brad Gruver, Ph.D.
Mr. Dan Sullivan

620 South Meridian Street • Tallahassee • FL • 32399-1600
www.floridaconservation.org

APPENDIX 5. Reviewers of the Panama City crayfish Biological Status Report and Draft Management Plan.

PRELIMINARY BIOLOGICAL STATUS REPORT

Biological Review Panel

Dr. I. Jack Stout
Department of Biology
University of Central Florida
4000 University Blvd., Room 210
Orlando, FL 32816-2368

Dr. Carter Gilbert
620 NW 40th Terrace
Gainesville, FL 32607

Dr. Dale Jackson
Florida Natural Areas Inventory
1018 Thomasville Rd., Suite 200-C
Tallahassee, FL 32303-6374

Dr. Mark A. Deyrup
Archbold Biological Station
P.O. Box 2057 (fed ex – Old State Road 8)
Lake Placid, Florida 33862

Mr. Brian Toland
Toland Environmental Consulting
4545 Rivermist Drive
Melbourne, FL 32935
321-255-0918

Other Individuals and Groups that Requested Copies and/or Submitted Comments

Dr. Edwin J. Keppner
4406 Garrison Road
Panama City, FL 32404

DRAFT MANAGEMENT PLAN

Individuals and Groups that Requested Copies and/or Submitted Comments

For future use.....

Florida Fish and Wildlife Conservation Commission
Listing Action Process
Biological Review Panel Evaluation

Petition Title: Petition to reclassify the Panama City crayfish (*Procambarus [Leconticambarus] econfinae*) from species of special concern status to threatened status.

Has the Commission correctly applied the available information to the classification criteria of Rule 68A-1.004, Florida Administrative Code to reach the recommendation made in the Preliminary Biological Status Report?

(Yes) No Other:_____

Please explain:

Reclassification to Threatened (and potentially to Endangered) is justified based on criteria A-B. However, I question the statement (p. 3) that human perturbations (highways and ditching) may have created suitable habitat. These activities simply cut into and alter (probably for the worse) existing habitat. They may make sampling easier, but I doubt that they actually add habitat.

Are there additional data that can be applied to the classification criteria that the Commission should consider in determining the biological status of the petitioned species?

(Yes) No Other:_____

Please explain:

A general comment: Existing criteria (D-E) based on number of mature individuals are not applicable to invertebrates, or even to lower vertebrates for that matter. These criteria are bird-mammal based. If such numerical criteria are to be considered by the Commission, then clearly different numbers need to be established for other taxa.

These review comments represent my independent assessment of the information provided.

Signature 3-12-02 Date

Florida Fish and Wildlife Conservation Commission
Listing Action Process
Biological Review Panel Evaluation

Petition Title: Petition to reclassify the Panama City crayfish (*Procambarus [Leconticambarus] econfinae*) from species of special concern status to threatened status.

Has the Commission correctly applied the available information to the classification criteria of Rule 68A-1.004, Florida Administrative Code to reach the recommendation made in the Preliminary Biological Status Report?

(Yes) No Other:_____

Please explain: The apparent loss of habitat for this species, and its restriction to an area of less than 100 sq mi. seem to justify the status reclassification. In addition to the threats mentioned, the species is increasingly vulnerable to pollution events because of the connectedness of ditch habitats compared to more diffuse wetlands. It is also in an area where increasing population may prompt mosquito control in wetlands, and if ~~the~~ an insecticide were used that killed crayfish, the entire species could be extirpated in a single relatively modest episode of mosquito control.

Are there additional data that can be applied to the classification criteria that the Commission should consider in determining the biological status of the petitioned species?

Yes (No) Other:_____

Please explain: The only data that could mediate against a "threatened" status for this species would be the discovery of a large additional population(s). This seems most unlikely, both because of the amount of effort already expended in surveys, and because of general patterns of crayfish biogeography, which often features narrowly based endemics, and because of a broader pattern of narrowly restricted sdemic species in a variety of groups of organisms in the Florida Panhandle.

These review comments represent my independent assessment of the information provided.

Mark Deyrup
Signature

23 March 2002
Date

Florida Fish and Wildlife Conservation Commission
Listing Action Process
Biological Review Panel Evaluation

Petition Title: Petition to reclassify the Panama City crayfish (*Procambarus [Leconticambarus] econfinae*) from species of special concern status to threatened status.

Has the Commission correctly applied the available information to the classification criteria of Rule 68A-1.004, Florida Administrative Code to reach the recommendation made in the Preliminary Biological Status Report?

(Yes) No Other:_____

Please explain:

The Keppner's appear to have done a very thorough survey of the Panama City crayfish within its natural range. They have further defined the extremely restricted natural range of this species, and have identified the ecological parameters under which this species lives. The total number of estimated individuals is very small, which is to be expected for a species with such a limited range. The crayfish does appear to be have adapted to certain non-natural habitats (paragraph 3 on page 3 of status report), which is somewhat unusual in that species of such limited ranges usually have relatively high levels of homozygosity and are thus less adaptable to changing conditions. Furthermore, it appears that the species would be easy to manage by setting and carefully maintaining a small amount of suitable habitat. These factors are the only compelling reasons for recommending its elevation "only" to threatened status. The species is so extremely vulnerable that it could very easily and quickly slip to the endangered level.

In summary, I completely agree with the conclusion that the Panama City crayfish should be elevated to threatened status.

Are there additional data that can be applied to the classification criteria that the Commission should consider in determining the biological status of the petitioned species?

Yes (No) Other:_____

Please explain:

These review comments represent my independent assessment of the information provided.

Curtis R. Gilbert
Signature

4 April 2002
Date

Florida Fish and Wildlife Conservation Commission
Listing Action Process
Biological Review Panel Evaluation

Petition Title: Petition to reclassify the Panama City crayfish (*Procambarus [Leconticambarus] econfinae*) from species of special concern status to threatened status.

Has the Commission correctly applied the available information to the classification criteria of Rule 68A-1.004, Florida Administrative Code to reach the recommendation made in the Preliminary Biological Status Report?

(Yes) No Other:_____

Please explain: This petition and status report represents a remarkable effort on the part of the private sector, namely Dr. and Mrs. E. J. Keppner, and the agency staff from the Bureau of Wildlife Diversity Conservation. The conclusion to recommend the reclassification of the Panama City crayfish to threatened status is certainly justified. Importantly, the point is raised that as more data accumulate it may be necessary to elevate the classification to endangered.

Are there additional data that can be applied to the classification criteria that the Commission should consider in determining the biological status of the petitioned species?

Yes (No) Other:_____

Please explain: I know of no other data that have a bearing on this petition.

These review comments represent my independent assessment of the information provided.

I. Jack Stout, PhD J. Jack Stout April 15, 2002
Signature Date

ATTACHMENT 12.

CRAYFISH LETTERS AND DOCUMENTS

AGREEMENT

This AGREEMENT made and entered into this 28 day of MAY, 2003, by and between the City of Panama City, Florida, hereafter the CITY and Frasier O. Bingham, Ph.D., hereafter BINGHAM. This constitutes the full AGREMENT between the parties. Any amendment must be in writing and signed by both parties.
WHEREAS, the CITY has determined that it is in the best interest of the CITY to engage BINGHAM in a consulting relationship to execute the environmental study later detailed in this AGREEMEMT.

WHEREAS, BINGHAM, by his expertise, relationships, and field of study, is competent and available to carry out the proposed environmental study detailed in this AGREEMENT.

NOW, THEREFORE, in consideration of the services to be furnished by BINGHAM, and the charges for these to be paid for by the CITY, and other considerations set forth in this AGREEMENT, the parties agree to the following:

1. THE STUDY: BINGHAM, with all due haste, recognizing that weather conditions can delay some field work, will do the following:

    A. BINGHAM will collect all of the available history, information, data, and governmental regulations concerning the possible several crayfish of the Bay County area and, in particular, Procambarus econfinae, the Econfina Crayfish.

    B. BINGHAM will communicate with all of the local advocates of the Econfina Crayfish in an effort to become familiar with the habits and habitats of the crayfish.

    C. BINGHAM will search for as yet undiscovered , or undisclosed, habitat sites. This effort to benefit from his gathered knowledge of the crayfish, the soil

survey of Bay County, Florida, the FDOT road map of Bay County, and County sectional aerial photographs. Any new site discoveries should somewhat lessen the State's concern for the now known 28 sites.

D. Based on the outcome of this study, BINGHAM will in a final report, suggest a number of changes to be made to the existing Fish and Wildlife take permit.

TERM OF STUDY: BINGHAM will, unless hampered by dry weather conditions, or a problem in obtaining a needed Scientific Collecting Permit from the Florida Fish and Wildlife Conservation Commission, complete the study and submit a Final Report to the CITY on or before August 29, 2003. If the study and report cannot be completed by that date, then completion will be as soon as possible thereafter. Such delay would not add to the CITY'S cost.

RENUMERATION: BINGHAM will invoice the CITY monthly for that percentage of the study completed excepting that one-half of the lump sum fee of $8,000.00 shall be payable only upon the CITY'S receipt and approval of the study's Final Report. All invoices will be payable upon receipt.

KEN HAMMONS Ken Hammons, MAY 27, 03
For City of Panama City, Print Name, Sign, and Date

Sharon Faile Sharon Faile May 28, 2003
Witness for City of Panama City, Print Name, Sign, and Date

FRASIER O. BINGHAM, Ph.D. Frasier O Bingham May 14, 2003
For Frasier O. Bingham, Ph.D., Print Name, Sign, Date

FAITH BINGHAM Faith Bingham May 14, 2003
Witness for Frasier O. Bingham, Ph.D., Print Name, Sign, Date

Frasier O. Bingham, Ph.D.
Environmental Consultant

1892 Witchtree Acres - Tallahassee, Florida 32312
Office 850.893.5135 Mobile 850.567.1459 FAX 850.894.3261

June 27, 2003

Mr. Richard Franz
Florida Museum of Natural History
Museum Road and Newell Drive
P.O.Box 177800
Gainesville, Florida 32611

Dear Mr. Franz:

I spoke earlier today with one of your assiciates, Mr. Paul Moeller. He suggested that you would be the person to help me with any published work on crayfish in Florida after: Hobbs, H.H., Jr. Ph.D., 1942, The Crayfishes of Florida.

I am interested in any work on life history, range extensions, newly discovered or named species, and systematic changes. Reprints of your papers concerning Florida crayfish would also be much appreciated.

I have been asked to help the City of Panama City in the discovery of new locations of the local crayfish Procambarus econfinae. I would like to contact you after your return to Florida to discuss best methods for conserving crayfish that are located in roadside ditches and other sites that require periodic maintenance.

Yours truly,

Frasier O. Bingham, Ph.D.

Frasier O. Bingham, Ph.D.
Environmental Consultant

**1892 Witchtree Acres - Tallahassee, Florida 32312**
**Office 850.893.5135 Mobile 850.567.1459 FAX 850.894.3261**

July 9, 2003

Dr. E.J. and Ms. L.A. Keppner
4406 Garrison Road
Panama City, Florida 32404

Dear Dr. and Ms. Keppner:

I have been engaged by the City of Panama City to search for, and hopefully find, several more locations inhabited by the crayfish, Procambarus econfinae.

Your curated specimens of Procambarus econfinae appear to be the only ones taken and still in Florida. Therefore, I am requesting that you allow me to study them for a period of one day in your laboratory.

In my application for a scientific collecting permit, I noted to Ms. Karen Lamonte that I was confident you would be happy to share your specimens. I also mentioned that I would be asking for that consideration shortly.

I will call in a few days to determine when this would be most convenient to you.

Yours truly,

Frasier O. Bingham, Ph.D.

Edwin J. Keppner
4406 Garrison Road
Panama City, FL 32404

July 13, 2003

Dr. Frazier Bingham
1892 Witchtree Acres
Tallahassee, Florida 32312

Dear Dr. Bingham:

I received your letter of July 9, 2003. Of course, you may see the specimens of *Procambarus econfinae*. They are the property of the Florida Fish and Wildlife Conservation Commission. Our present work schedule does not permit a commitment to any dates for anything except contractual and volunteer work in progress before August 31, 2003. However, the Commission has asked us to bring the specimens of *P. econfinae* to their Panama City office for your viewing. This will be done on Tuesday, July 15. You may contact them for a time to examine the specimens. The best of luck in your endeavor.

Sincerely yours,

Edwin J. Keppner

Edwin J. Keppner, Ph.D.

cc: FFWCC, Panama City, FL

Frasier O. Bingham, Ph.D.
Environmental Consultant

**1892 Witchtree Acres - Tallahassee, Florida 32312**
**Office 850.893.5135 Mobile 850.567.1459 FAX 850.894.3261**

July 18, 2003

Mr. Paul Moler
Florida Fish and Wildlife Conservation Commission
4005 South Main Street
Gainesville, Florida 32601

Re: Request for Information Concerning
the Listing of Procambarus econfinae
as a Florida Species of Special Concern

Dear Mr. Moler:

I am interested in learning as much as possible about the discovery and written history of the crayfish Procambarus econfinae.

Presumably that crayfish had not been collected and/or noted to be different enough to be classified as a species before being collected, described, and named by H.H. Hobbs in 1938/42.

Do you know of any bonafide efforts to find and collect P. econfinae in the period between Hobbs (1942) and your catch in 1972? If there were no such surveys, how can it now be widely reported that this species was thought to be extinct before your catch. I have also read that it was thought to be extinct between your catch and the 1999 catch by the Keppners.

In our recent telephone conversation, you noted that you had netted a single crayfish specimen in a ditch near Panama City and that you had sent this specimen to Horton Hobbs, Jr. for identification and that Dr. Hobbs identified it as P. econfinae.

I have several questions that will be easier for both of us if I number them.

1. Did Dr. Hobbs note to you that your specimen was the first one that he had seen collected after his 1938-39 collection?

2. Did Dr. Hobbs indicate that he had tried and failed to capture P. econofinae between his collections of 1938-39 and your find in 1972?

3. How extensive was your search for aquatic animals during the trip on which your found P. econofinae?

4. Did you or your agency carry out a reasonable and bonafide search for P. econofinae before placing it on a species list?

5. Please relate the process and requirements used to place P. econofinae on the list.

6. When P. econofinae was placed on a list, did that list at that time enjoy any legal protection? If so, what was that protection at the time of listing?

7. When (year) was P. econofinae placed on a list? At that time, had any comprehensive search for the species been made?

   I note in my intra-agency document, A Summary of the Endangered Species Program In Florida, Frasier O. Bingham, Ph.D., Florida Department of Transportation, 1976, that there appears to be no State list for species of special concern in 1976.

8. When (year) was the State List of Species of Special Concern recognized and given legal protection by the Florida Legislature?

Your help with these and possibly some future questions will be very much appreciated.

Yours truly,

_____

Frasier O. Bingham, Ph.D.

WILDLIFE RESEARCH LABORATORY
4005 SOUTH MAIN STREET
GAINESVILLE, FLORIDA 32601-9099
(352) 955-2230 • FAX (352) 376-5359

22 July 2003

Frasier O. Bingham
1892 Witchtree Acres
Tallahassee FL 32312

Dear Mr. Bingham:

I am in receipt of your letter requesting information concerning the listing of *Procambarus econfinae* as a Florida Species of Special Concern (SSC). First, let me correct a couple of errors in your letter.

- You indicated that I had collected *P. econfinae* in 1972. Actually, I first collected the species in 1986.
- You indicated that I had netted a single specimen in a ditch near Panama City. Actually, I sent a series of 3 specimens (1 form I male, 1 form II male, 1 female) to Dr. Hobbs for confirmation of my identification of the specimens.

In response to your specific questions:

1. Did Dr. Hobbs note to you that your specimen was the first one that he had seen collected after his 1938-39 collection?

   More precisely, he said, "How pleasant it was to see freshly caught specimens of species that I do not recall having seen since the early 40's."

2. Did Dr. Hobbs indicate that he had tried and failed to capture P. econfinae between his collections of 1938-39 and your find in 1972 (sic, 1986)?

   No.

3. How extensive was your search for aquatic animals during the trip on which you found *P. econfinae*?

   Fairly extensive. It involved amphibian sampling in numerous streams in Walton, Okaloosa, and Santa Rosa counties.

4. Did you or your agency carry out a reasonable and bona fide search for *P. econfinae* before placing it on a species list?

   See number 7, below.

5. Please relate the process and requirements used to place *P. econfinae* on the list.

   Rather than risk giving you misleading or incorrect information, I would refer you to the Office of General Counsel, Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600

6. When *P. econfinae* was placed on a list, did that list at that time enjoy any legal protection? If so, what was that protection at the time of listing?

   Yes. At the time, Section 39-27.002(4), Florida Administrative Code, provided, "Species of special concern – No person shall take, possess, transport, or sell any species of special concern or parts thereof or their nests or eggs except as authorized by commission regulations or by permit from the executive director or by statute or regulation of any other state agency, permits being issued upon reasonable conclusion that the permitted activity will not be detrimental to the survival potential of the species."

7. When (year) was *P. econfinae* placed on a list? At that time had any comprehensive search for the species been made?

   1989. At that time, Species of Special Concern was defined (39-1.004[68] F.A.C.):

   > "As designated by the commission, a species, subspecies, or isolated population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species; **may already meet certain criteria for designation as a threatened species but for which conclusive data are limited or lacking;** may occupy such an unusually vital and essential ecological niche that should it decline significantly in numbers or distribution other species would be adversely affected to a significant degree; or has not sufficiently recovered from past population depletion."

   The listing as SSC was based upon the best available information. Because of the species' very restricted distribution (Hobbs 1942), urbanization of the Panama City and Lynn Haven area, and the associated extensive modification of flatwoods habitats within the species' range, it was considered likely that *P. econfinae* warranted listing as Threatened or Endangered. However, it was listed as SSC because of the lack of conclusive data to support a higher listing.

8. When (year) was the State List of Species of Special Concern recognized and given legal protection by the Florida Legislature?

   The SSC category was added to the Florida Wildlife Code in 1979.

Let me know if I can provide any additional information.

Sincerely,

Paul E. Moler

Paul E. Moler
Biological Administrator II

From: Cheryl Bright
To: frasierbin@earthlink.net
Date: 7/1/2003 9:29:07 AM
Subject: Re: Request for lending procedures for Several specimens ofthe crayfish Procambarus econfinae

---

Dear Dr. Bingham,

We prefer to have formal loan requests written on university letterhead. Loans are made to faculty members and other researchers with permanent appointments. Specimens in support of activities of adjunct researchers, visiting researchers and students must be requested by a permanent staff member.The request can either be mailed to me at

Collection Manager - Invertebrate Zoology
Smithsonian Institution
PO Box 37012
Washington DC 20013-7012

or faxed to me at 202-357-3043.

The request should include a detailed description of the material you would like to borrow, including type status and USNM catalog number if known. Our specimen catalog is accessible via the web at www.nmnh.si.edu (follow the links to collection databases). A quick search of that database will often help you determine what specimen(s) will best serve your needs.

We are now required to pack and ship fluid preserved specimens according to DOT and FedEx hazmat protocols. You must agree to return the specimens to us via FedEx, following the appropriate hazmat protocols. Your local FedEx office or your university shipping office should be able to provide you with directions. For FedEx delivery your request should include your complete mailing address (no PO box numbers), your daytime telephone number and your university e-mail address.

Currently we have a 3-4 week processing backlog of loan requests. As soon as I receive your formal request I will include it in the processing queue.

Sincerely,

Cheryl F. Bright
Collection Manager, Invertebrate Zoology
National Museum of Natural History
Smithsonian Institution
Washington DC 20560-0163

202-357-4687 (phone)

Frasier O. Bingham, Ph.D.
Environmental Consultant

**1892 Witchtree Acres - Tallahassee, Florida 32312**
**Office 850.893.5135 Mobile 850.567.1459 FAX 850.894.3261**

August 15, 2003

Mr. Ken Haddad, Executive Director
Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, Florida 32399

Re: Request for Present Level of State Protection for the Panama City Crayfish, Procambarus econfinae, Against the Import and Release of the Louisiana Red Swamp Crayfish, Procambarus clarkii in Bay County, Florida

Dear Mr. Haddad:

It has come to my attention that a species listed by Florida on a Species of Special Concern list, the crayfish, Procambarus econfinae, and several other local West Florida crayfish species, do not appear to have State protection against the importation and release of a certain large, aggressive crayfish, Procambarus clarkii. This native Louisiana crayfish is now being implicated in the expatriation of numerous local crayfish species around the earth.

If your legal search determines that indeed P. clarkii can now legally be released into the wild in Bay County by the general public, I request that all ongoing species listing proceedings concerning P. econfinae by the FFWCC be put on hold. This hiatus should be in effect until the State has had the opportunity to provide P. econfinae some legal protection against the so called "Killer Crayfish". Attached is an article from the New York Times concerning this "Killer From Louisiana, on the Loose in Italy".

In any case, please let me know of your findings and send me the appropriate paragraphs that support your conclusion. If you find that there is a problem, a simple solution may be to make changes in Paragraph (2) (a) 13 of your rule 68A-23.008 so as not to name Procambarus clarkii and Procambarus zonangulas and make no distinction between the lands east and west of the Apalachicola River. I have also attached copies of the FFWCC Chapter 68A-23 (in part).

I will be interested in hearing from you as soon as possible on this matter. Please call me if you have any questions.

Yours truly,

_____

Frasier O. Bingham, Ph.D.

Attachments

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

September 3, 2003

Dr. Frasier Bingham
1892 Witchtree Acres
Tallahassee, FL 32312

Dear Dr. Bingham:

Mr. Ken Haddad, Executive Director of the Florida Fish and Wildlife Conservation Commission (FWC) asked me to respond to your letter dated August 15, 2003 regarding the Red Swamp or Louisiana Crayfish, *Procambarus clarkii*. In this letter, you expressed concern over the potential impact of importation and release of Red Swamp Crayfish on the native Panama City Crayfish, *Procambarus econfinae*. Further, you requested that action be taken through the FWC's rule making and species listing processes in order to provide further protections to the Panama City Crayfish.

As you are aware, the Panama City Crayfish is listed by the state of Florida as a Species of Special Concern (F.A.C. 68A-27.005). Protections afforded under this rule include protection against take, possession, transport, or sale of the species, its parts, nests, or eggs. No specific prohibition against import or release of non-native crayfish is established under this rule. However, prohibitions on the importation, possession, and release of non-native aquatic species, including the Red Swamp Crayfish and White River Crayfish (*Procambarus zonangulas*), are established in F.A.C. 68A-23.008. Prohibitions on the release of non-native species into the wild are also codified in F.S. 372.265 and F.A.C. 68A-4.005. Release of Red Swamp Crayfish into the wild in Bay County or any other area of the state is prohibited under the statute and rules listed above. Further, F.S. 597 requires certification of all aquaculture operations including those for non-native species. This certification requires aquaculture facilities to follow best management practices (BMPs) in their operation. These BMPs are in place in part to provide safeguards against the escape or accidental release of non-native species into the waters of the state. Individuals importing or possessing Red Swamp Crayfish in Bay County or any other area of the state must implement BMPs to prevent release of the species into the wild.

Because of the prohibitions in the above rules and the lack of evidence that the Red Swamp Crayfish currently poses a threat to the Panama City Crayfish, we believe that a rule change at this time is unnecessary. Rule changes are effected during a biennial rule making cycle, with new rules and changes to existing rules being proposed either by Commission staff or the public. The Public Input Process (PIP) is the mechanism by which the public can suggest rule changes and would be the appropriate avenue for your suggested change to F.A.C. 68A-23.008. This process allows for a thorough evaluation of the need, benefits, and costs of a rule. The PIP is

620 South Meridian Street • Tallahassee • FL • 32399-1600
www.floridaconservation.org

coordinated through the appropriate Regional Director; we would be happy to place your name on our solicitation list for the next PIP cycle, if you so request.

We believe that the best way to address threats to the future survival of the Panama City Crayfish is through the listing process and development of a comprehensive management plan for the species. The FWC's listing process provides a mechanism to more clearly identify threats to the Panama City Crayfish and identify research and regulatory needs to address those threats. Therefore, completing the listing process and species management plan will result in the most thorough review of this issue and greater protection for the Panama City Crayfish over time.

The FWC continues to work for the conservation of the Panama City Crayfish. We are confident that completion and implementation of the species management plan will provide us with solid direction to accomplish our goal. If you have any questions on this issue or need further information, please feel free to contact Ms. Karen Lamonte at (850) 265-3676. For further information on PIP and the rule making process, please contact Lt. Col. Louie Roberson at the same phone number.

Thank you for your concern for Florida's native wildlife.

Sincerely,

Thomas H. Eason

Thomas H. Eason, Ph.D., Chief
Bureau of Wildlife Diversity Conservation

THE/kml
ESC 6-1

cc: Mr. Ken Haddad
Lt. Col. Louie Roberson
Mr. Frank Montalbano
Dr. Brad Gruver
Mr. Dan Sullivan
Ms. Karen Lamonte

620 South Meridian Street • Tallahassee • FL • 32399-1600
www.floridaconservation.org

Florida Department of Transportation

JEB BUSH
GOVERNOR

JOSÉ ABREU
SECRETARY

August 8, 2003

Frasier O. Bingham, Ph.D.
Bingham Environmental Consulting
1892 Witchtree Acres
Tallahassee, Florida 32312

RE: Permission to Search for and Report Habitat Locations of the Econfina Crayfish, *Procambarus econfinae*

Dear Dr. Bingham:

We understand that you have been engaged by the City of Panama City, Florida for the purpose of searching for and studying the Econfina Crayfish, *Procambarus econfinae.*

We hereby support the City's efforts to find more existing locations of this animal and as such are willing to allow you to search for the Econfina Crayfish, *Procambarus econfinae* on Florida Department of Transportation owned or leased properties within Bay County, Florida.

Your efforts will be directed at the determination of the presence of only this one species. The Florida Department of Transportation is not contractually obligated to Bingham Environmental Consulting, or you personally, for monetary compensation of the aforementioned activities. Also, this ingress permission may be terminated at any time by a letter of notification from our office.

Sincerely,

Regina Battles

Regina Battles
District Environmental Management Engineer

cc: File

PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION
225 McKenzie Avenue
Panama City, Florida 32401
850-784-4070

July 22, 2003

LETTER OF PERMISSION

Fraisier O. Bingham, Ph.D.
Bingham Environmental Consulting
1892 Witchtree Acres
Tallahassee, Florida 32312

RE: Permission to search for and Report Habitat Locations of the Crayfish Procambarus econofinae

Dear Mr. Bingham:

We understand that you have been engaged by the City of Panama City for the purpose of searching for and studying the Econfina Crayfish, Procambarus econofinae.

We wish to support the City's efforts to find more existing locations of this Crayfish and as such are willing to allow you to search for the Econfina Crayfish, Procambarus econofinae on county property, road right-of-ways and drainage easements.

Your efforts will be directed at the determination of the presence of only this one species. Also, this ingress permission may be terminated at any time by a letter of notification from our office.

Sincerely,

Larry Hawks
Signature

ENVIRONMENTAL COORDINATOR
Title

LH/bh

S:\front desk\Correspondence\Larry\Misc. Ltrs\Ltr of Permission.doc

One Energy Place
Pensacola, Florida 32520

Tel 850.444.6111

GULF POWER
A SOUTHERN COMPANY

August 18, 2003

Frazier O. Bingham, Ph.D.
Bingham Environmental Consulting
1892 Witchtree Acres
Tallahassee, Florida 32312

Re: Permission to Search for and Report
Habitat Locations of the Crayfish
Procambarus econofinae

Dear Dr. Bingham:

We understand that you have been engaged by the City of Panama City, Florida for the purpose of searching for and studying the Econfinae Crayfish, Procambarus econofinae.

We wish to support the City's efforts to find more existing locations of this animal and as such are willing to allow you to search for the Econfinae Crayfish, Procambarus econofinae on our owned or leased properties in Bay County, Florida.

Your efforts will be directed at the determination of the presence of only this one species. Also, this ingress permission may be terminated at any time by a letter of notification from Gulf Power Company.

Sincerely,

Rachel Terry

Rachel Terry
Environmental Specialist

cc: Don Schofield
Jim Vick

THE BAY LINE RAILROAD, L.L.C.

July 22, 2003

Frasier O. Bingham, Ph.D.
Bingham Environmental Consulting
1892 Witchtree Acres
Tallahassee, Florida 32312

Re: Permission to Search for and Report Habitat Locations of the Crayfish, Procambarus econofinae

Dear Dr. Bingham:

We understand that you have been engaged by the City of Panama City for the purpose of searching for and studying the Econfina Crayfish, Procambarus econofinae.

We wish to support the City's efforts to find more existing locations of this animal and as such are willing to allow you to search for the Econfina Cryfish, Procambarus econofinae on property owned by the Bay Line Railroad in Bay County, Florida.

Your efforts will be directed at the determination of the presence of only this one species. Also, this ingress permission may be terminated at any time by a letter of notification from the Bay Line.

Please contact the Bay Line Dispatcher at 850-785-4609 for protection before entering our property.

Sincerely,

D R Davis

Doug Davis
Vice President and Chief Engineer

DRD/kab

2605 THOMAS DRIVE PANAMA CITY BEACH, FLORIDA 32408 (850) 230-8331 FAX (850) 230-8848

PORT PANAMA CITY
U.S.A.

August 18, 2003

Frasier O. Bingham, Ph. D.
Bingham Environmental Consulting
1892 Witchtree Acres
Tallahassee, Florida 32312

RE: Permission to Search for and Report Habitat Locations of the Crayfish Procambarus econofinae

Dear Dr. Bingham:

We understand that you have been engaged by the City of Panama City for the purpose of searching for and studying the Econfina Crayfish, Procambarus econofinae.

We wish to support the City's efforts to find more existing locations of this animal and as such are willing to allow you to search for the Econfina Crayfish, Procambarus econofinae on our owned or leased properties in Bay County, Florida.

Your efforts will be directed at the determination of the presence of only this one species. Also, this ingress permission may be terminated at any time by a letter of notification from our office.

Yours truly,

Charles P. Lewis
Deputy Director

Panama City Port Authority & Foreign Trade Zone 65
P.O. Box 15095 Panama City, Florida USA 32406 850/767-3220
Fax: 850/767-3235 E-Mail: portpc@bellsouth.net
Website: portpanamacityusa.com

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

NORTHWEST REGIONAL OFFICE
Louie S. Roberson, Regional Director
(850) 265-3676

June 20, 2003

Dr. Frasier O. Bingham
Bingham Environmental Consulting
1892 Witchtree Acres
Tallahassee, FL 32312

Dear Dr. Bingham:

This is in response to your 22 May 2003 application for a scientific collecting permit for a study of Panama City crayfish, *Procambarus econfinae*. Pursuant to our review of your application, we have identified the following items for which we need further clarification:

1. **Number of specimens.** Your application states that you will collect 12 Panama City crayfish specimens. However, it is unclear how many specimens you wish to collect from each location. **Please provide information on how many specimens will be collected from each individual location.**

   Further, your application states that you will be collecting Type I males, Type II males, adult females, and juveniles. However, definitive identification to species for crayfish can only be made with Type I males. **Please justify why collection of non-breeding males, females, and juveniles will be necessary.**

2. **Disposition of specimens.** Your application states that specimens will be kept at the Bingham Environmental Specimen Collection in Tallahassee. Generally, specimens collected under state scientific collecting permits are deposited in museum collections so that they are available to the public for further scientific study and identification confirmation. **Please specify to which museum specimens will be donated.**

3. **Location of proposed work.** Your application states that you will survey for crayfish within the range of the Panama City crayfish. However, you do not specify exactly which areas within the range you wish to survey. **Please provide a map depicting the exact locations of ditches or other areas you wish to survey.**

   Further, as you know, several surveys of this nature have already been undertaken and several Panama City crayfish sites documented. Your cover letter states, "I wish to identify any as yet unknown sites of habitation of the native crayfish *Procambarus econfinae*..." Given this statement, we are assuming you are not requesting a resurvey of already documented areas. Resurvey of known sites could lead to duplication of effort and place undue stress on those populations. **Please clarify the intended scope of your survey.**

3911 Hwy 2321, Panama City, FL 32409
www.floridaconservation.org

Also, your application states that you have been contracted by the City of Panama City to conduct this survey. You have not provided any documentation of this arrangement in order to clarify exactly what areas or locations the City wishes you to survey. Are you planning to survey only lands owned by the City? Or lands slated for development? Or all potential crayfish habitat within the city boundaries? **Please provide a map depicting the ownership of the sites you wish to survey. Also, please keep in mind that a permit from the Commission for survey work would not provide you access to any private properties.**

4. **Survey technique.** Your application states that you will use a number of different devices in an attempt to catch Panama City crayfish. However, your application failed to specify exactly how these tools would be used. In particular, you propose using a rake and shovel. **Please clarify how these techniques will be used to capture Panama City crayfish without harming or killing the crayfish.**

   Further, as you are aware, surveys for Panama City crayfish seem to be most effective during times when ditches or other habitat is inundated with water. How do you plan to survey if sites are not inundated? Will you wait for rain or use some other technique? **Please clarify your exact survey technique under dry and inundated conditions.**

   Also, as you know, surveying a particular location 1 time and not finding Panama City crayfish is not usually suitable to rule out a particular site as not having Panama City crayfish. This is particularly true if surveys are done only under dry conditions. FWC's Panama City Crayfish Draft Management Plan calls for a minimum of 3 surveys, 2 of which must be during wet/inundated conditions, without verified Panama City crayfish presence in order for a site to be considered vacant. The plan also recommends that wet/inundated surveys occur during separate periods of inundation (i.e., a period with dry conditions should separate wet/inundated sampling attempts). What is your plan for multiple surveys? How long do you plan to survey at a site? How many sweeps do you plan to use? **Please provide a detailed description of your survey methodology.**

5. **Experience with crayfish identification.** As you know, identification of crayfish to species is done through examination under a microscope of the first set of pleopods of Type I males. This can be difficult for the untrained collector. **Please describe your experience with crayfish identification. If you do not have any experience with crayfish identification, do you plan to confirm specific identification with experts in the field?**

Please provide the requested written clarification at your earliest convenience so that we can proceed with evaluation of your application. If you have any questions or need additional information, please do not hesitate to contact me. Thank you for your attention to this matter.

Sincerely,

Karen M. Lamonte

W1077/
ESC 6-1
cc: Ms. Angela Williams

Karen M. Lamonte
Regional Biologist
Bureau of Wildlife Diversity Conservation

Frasier O. Bingham, Ph.D.
Environmental Consultant

**1892 Witchtree Acres - Tallahassee, Florida 32312**
**Office 850.893.5135 Mobile 850.567.1459 FAX 850.894.3261**

July 3, 2002

Ms. Karen Lamonte, Regional Biologist
Bureau of Wildlife Diversity Conservation
Florida Fish and Wildlife Conservation Commission
3911 Highway 2321
Panama City, Florida 32409

Re: Attached Application for Permit Clarifications

Dear Ms. Lamonte:

Please find here my responses to your request for further clarification of information and data submitted by me in an application for a scientific collecting permit.

If the information and data submitted herewith are not sufficient, please alert me through a telephone call or FAX so that I can quickly submit any remaining requirements.

Yours truly,

Frasier O. Bingham, Ph.D.

Attachments

Ms. Karen Lamonte, Regional Biologist
Bureau of Wildlife Diversity Conservation
Panama City, Florida 32409

1. **Number of specimens.** Your application states that you will collect 12 Panama City crayfish specimens. However, it is unclear how many specimens you wish to collect from each location. **Please provide information on how many specimens will be collected from each individual location.**

   Further, your application states that you will be collecting Type I males, Type II males, adult females, and juveniles. However, definitive identification to species for crayfish can only be made with Type I males. **Please justify why collection of non-breeding males, females, and juveniles will be necessary.**

Clarification

I will collect and curate as few specimens from each location as is possible in order to gain the data that I need for each surveyed location.

For Procambarus econfinae, I will capture and carry to my laboratory several promising specimens (perhaps one to six) for positive identification. If one adult Form I male is identified, then only that specimen will be kept and curated. If no Form I males are identified, and one Form II male or one adult female is identified, then those specimens will be kept and curated. At locations where the species, but no Form I male, has been found, I will continue to look for the Form I male.

A log will be kept on all specimens taken to the laboratory. All specimens not curated will be released in their home location during the morning following capture.

For the not listed crayfish species that I am likely to encounter, I will take and curate one Form I male of each species from each location. All specimens not kept and curated will be released in their home locations during the morning following their capture.

Please see Hobbs, HH Jr., 1942, pp. 23-27, for justification of curating Form II males, and adult females. I would like to study a few juveniles for any possible distinctive characteristics they might possess. It does not appear that Hobbs, Jr. studied juvenile Procambarus econfinae.

2. **Disposition of specimens.** Your application states that specimens will be kept at the Bingham Environmental Specimen Collection in Tallahassee. Generally, specimens collected under state scientific collecting permits are deposited in museum collections so that they are available to the public for further scientific study and identification confirmation. **Please specify to which museum specimens will be donated.**

Clarification

I have contacted the University of Florida. They have two species of crayfish in their museum collection. I have contacted the Tulane University Museum of Natural History. The person working with crayfish there, Dr. Joseph F. Fitzpatrick, passed away about one year ago and his collection now remains at Tulane. I have spoken with the present museum manager, Dr. Hank Bart, and he would very much like to have my specimens at the end of my study.

Therefore, as of now I expect to donate my specimens to the Tulane Museum of Natural History. If this is not satisfactory, I will donate all of the specimens to any curating museum suggested by the FFWCC. All of my curated specimens before donation will available to anyone who wishes to inspect them.

3. **Location of proposed work.** Your application states that you will survey for crayfish within the range of the Panama City crayfish. However, you do not specify exactly which areas within the range you wish to survey. **Please provide a map depicting the exact locations of ditches or other areas you wish to survey.**

Further, as you know, several surveys of this nature have already been undertaken and several Panama City crayfish sites documented. Your cover letter states, "I wish to identify any as yet unknown sites of habitation of the native crayfish *Procambarus econfinae*..." Given this statement, we are assuming you are not requesting a resurvey of already documented areas. Resurvey of known sites could lead to duplication of effort and place undue stress on those populations. **Please clarify the intended scope of your survey.**

Also, your application states that you have been contracted by the City of Panama City to conduct this survey. You have not provided any documentation of this arrangement in order to clarify exactly what areas or locations the City wishes you to survey. Are you planning to survey only lands owned by the City? Or lands slated for development? Or all potential crayfish habitat within the city boundaries? **Please provide a map depicting the ownership of the sites you wish to survey. Also, please keep in mind that a permit from the Commission for survey work would not provide you access to any private properties.**

Clarification

I have attached a copy of the GENERAL SOIL MAP found in The Soil Survey of Bay County, Florida. You will notice that I have highlighted four general types of soils. These four general types of wetland soils contain all of the soils listed on page 2 of The Final Biological Status Report Panama City Crayfish.

For me to narrow down my search area, or for you to do so, even before I know where to look would not be reasonable. Even some upland areas could very well contain ditches or holding ponds where Procambarus econfinae has colonized and is doing well. My charge from the City of Panama City is to find Procambarus econfinae. Obviously I need the freedom to look for it.

I will need a list of the 28 or so exact locations where Procambarus econfinae has been found. The U.S. Fish and Wildlife Service has agreed to provide this data. I will not need to survey such sites but will want to visit these sites to become familiar with the "look" or "feel" of those sites so that I can quickly determine if new areas have a high potential for containing Procambarus econfinae. Also, I might spend valuable time surveying a known site if that site's location has not been given to me. I am requesting the list of 28 active locations from the U.S. Fish and Wildlife Service.

A copy of my arrangement with the City of Panama City is attached. Please note that they have engaged me to search for new Procambarus econfinae locations and have not restricted my search to certain defined areas. I will, however, restrict my surveys to Bay County unless there appears reason to believe that the Procambarus econfinae is living in one or more neighboring counties. In that case, I will re-visit my permit and request an area extension for my study.

I want to study all potential habitat of Procambarus econfinae in Bay County, Florida. I do not have ownership maps but expect to have written permission of each of the several large land owners in the County to survey their lands for the presence of Procambarus econfinae. I would have that permission in hand, and send copies to you if required, before entering such properties. I understand that a permit from the Commission does not provide me access to any private properties.

4. **Survey technique.** Your application states that you will use a number of different devices in an attempt to catch Panama City crayfish. However, your application failed to specify exactly how these tools would be used. In particular, you propose using a rake and shovel. **Please clarify how these techniques will be used to capture Panama City crayfish without harming or killing the crayfish.**

Further, as you are aware, surveys for Panama City crayfish seem to be most effective during times when ditches or other habitat is inundated with water. How do you plan to survey if sites are not inundated? Will you wait for rain or use some other technique? **Please clarify your exact survey technique under dry and inundated conditions.**

Also, as you know, surveying a particular location 1 time and not finding Panama City crayfish is not usually suitable to rule out a particular site as not having Panama City crayfish. This is particularly true if surveys are done only under dry conditions. FWC's Panama City Crayfish Draft Management Plan calls for a minimum of 3 surveys, 2 of which must be during wet/inundated conditions, without verified Panama City crayfish presence in order for a site to be considered vacant. The plan also recommends that wet/inundated surveys occur during separate periods of inundation (i.e., a period with dry conditions should separate wet/inundated sampling attempts). What is your plan for multiple surveys? How long do you plan to survey at a site? How many sweeps do you plan to use? **Please provide a detailed description of your survey methodology.**

Clarification

The great bulk of my field work will be using a small crayfish drag. This piece of equipment is used by most or all of the people in the State that make a significant part of their income by catching and selling crayfish for fishing bait. This item is no doubt familiar to you. It is essentially a wire basket on the end of a pole. It is used only where water covers the surface of the ground.

Other pieces of equipment that I may use from time to time as necessary are a hard rake to drag floating vegetation out of ditches and up on the shore, and a sharp shooter shovel to dig a few specimens when all else has failed. My field trips will be of two types. The first being for discovery of crayfish colonies. This can be done in wet or dry weather. The second is for collecting and this will be done in wet conditions with the wetlands and ditches being inundated with water. There is always the possibility that some crayfish will be killed or die during capture, transport, inspection, or release. I will do everything possible to maintain a safe, cool and wet environment to keep them healthy.

I will time my collecting visits to sites of high potential so that I will be there when the wetlands or ditches contain at least some above ground water. If I cannot capture any crayfish under these wet conditions, I will probably not try in dry conditions. I will be trying to discover new locations of habitation and will have little interest in trying to determine where they do not live. I do not expect to be at any single site more than one hour at a time.

5.

5. **Experience with crayfish identification.** As you know, identification of crayfish to species is done through examination under a microscope of the first set of pleopods of Type I males. This can be difficult for the untrained collector. **Please describe your experience with crayfish identification. If you do not have any experience with crayfish identification, do you plan to confirm specific identification with experts in the field?**

Clarification

I believe that I now have all of the tools that I need to key out any of the many endemic crayfish of Florida. If this proves to not be the case, I will send questionable specimens to Mr. Richard Franz of the Florida Museum of Natural History in Gainesville. He is not available at this time but has in the past been helpful to other workers in species identification. He plans to return to Gainesville in the Fall.

I am now engaged in keying out a number of crayfish species that friends have sent me from Wakulla, Franklin, and Washington Counties. I have contacted Dr. Hobbs, III, for guidance concerning the use of the subgenus name and will use it in the future if he so advises. I am confident that the Keppners will allow me to inspect their specimens of Procambarus econfinae in their laboratory. I will go ahead and arrange a viewing while I await the arrival of the FFWCC Scientific Collecting Permit.

PERMIT

Issued Under Authority of the Wildlife Code of the State of Florida
(Title 68A, Florida Administrative Code) by the

STATE OF FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
Division of Wildlife, 620 South Meridian Street, Tallahassee, FL 32399-1600, (850) 921-5990, ext. 17310

Permit No. WX03340 **Issuance Date** 11 August 2003 **Expiration Date** 11 August 2004
Permit Type Special Purpose **Specific Rule Authority** 68A-9.002, 68A-25.002 & 68A-27.005
Permittee Frasier O. Bingham **Affiliation** Environmental Consultant
Phone no. (850) 893-5135 1892 Witchtree Acres
Tallahassee, FL 32312

Signature _____
*Signature indicates acceptance and understanding of the provisions/conditions listed below. Please return a signed copy to this office

Pursuant to Rules 68A-9.002, 68A-25.002 & 68A-27.005, F.A.C., this permit authorizes the above named permittee to collect Panama City crayfish (*Procambarus [Leconticambarus] ecofinae*) in Bay County, Florida subject to the following provisions/conditions.

Provisions/Conditions:

1. Up to 12 Panama City crayfish (PCC) (*Procambarus [Leconticambarus] ecofinae*) may be collected for species and taxonomic identification per the objective and methodology stated in the Permittee's May 22, 2003 original application and supplemental materials dated July 3, 2003, herein incorporated as referenced. Mr. Paul Moler, Herpetological Section Leader, Florida Fish and Wildlife Conservation Commission, Gainesville Research Laboratory, 4005 South Main Street, Gainesville, FL 32601, (352) 955-2230, shall determine final disposition of specimens.

2. Panama City crayfish also may be temporarily possessed and maintained in captivity for identification purposes for a period of up to 30 days and then returned to their point of capture. Such possession/captive maintenance is to be under sanitary and spacious conditions and other wise in compliance with Rules 68A-6.0011, 68A-6.002, 68A-6.0023, and 68A-6.003, where applicable.

3. This permit does not authorize access to any public or private properties. Any required permission accordingly must be secured from the appropriate landholders prior to initiating any work on those properties.

4. The permitted activities must also be federally permitted/authorized pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531). A copy of any such federal permit must be provided this office before executing this permit.

5. This permit is subject to revocation at any time pursuant to Chapter 120, Florida Statutes. It is nontransferable and must be readily available for inspection at all times while engaging in the permitted activities. Other qualified personnel may assist in the permitted activities in the absence of the Permittee's direct supervision, when those assistants are designated via letter from the Permittee to each designee, with this office provided a copy of such letter(s).

6. A detailed report of all activities engaged in pursuant to this permit must be submitted within 90 days subsequent to permit expiration or upon application for permit renewal, whichever is precedent. Copies of any other reports or publications, which result from the work, must also be provided upon their availability. Requests for permit renewal should be submitted at least 45 days prior to the time it is needed.

Kenneth D. Haddad
Executive Director

By: _____
Thomas H. Eason, Ph.D., Chief
Bureau Wildlife Diversity Conservation
Division of Wildlife

W1067/THE/atw
LIC 6-1
WX03340.per
cc: Mr. Paul Moler
Northwest Region

ATTACHMENT 13.

THE FOLLOWING PERSONS WERE INVOLVED IN SOME WAY IN THE PANAMA CITY CRAYFISH PROJECT THROUGH COMMUNICATIONS WITH DR. BINGHAM

Ms. Regina Battles	Florida Department of Transportation
Mr. Andy Barth	Biological Research Associates, Inc.
Dr. Hank Bart	Tulane University Museum of Natural History
Ms. Faith Bingham	Bingham Environmental
Dr. Frasier Bingham	Environmental Consultant
Ms. Cheryl Bright	The Smithsonian Institution
Randelette Bryant, Esq	City of Panama City, Florida
Ms. Gail Carmody	U.S. Fish and Wildlife Service
Mr. Doug Davis	The Bay Line Railroad, LLC
Dr. Thomas H. Eason	Florida Fish and Wildlife Conservation Commission
Mr. Jim Feiertag	Florida Fish and Wildlife Conservation Commission
Mr. Richard Franz	University of Florida
Mr. Neil Fravel	City of Panama City, Florida
Mr. George Gonzales	St. Joe - Arvida
Dr. Brad Gruver	Florida Fish and Wildlife Conservation Commission

Mr. Ken Hammons	City of Panama City, Florida
Mr. Larry Hawks	Bay County Public Works Department
Mr. Mike Heyn	Florida Department of Environmental Protection
Dr. H.H. Hobbs, III	Wittenberg University, Springfield, OH
Ms. Patty P. Kelly	U.S. Fish and Wildlife Service
Dr. Edwin J. Keppner	Biologist
Ms. Karen Lamonte	Florida Fish and Wildlife Conservation Commission
Mr. Deron Lawrence	Biological Research Associates, Inc.
Mr. Charles P. Lewis	Port Panama City, USA
Mr. Bob Martin	Martin Microscope Company
Ms. Amanda Mikuski	Baskerville - Donovan, Inc.
Mr. Paul Moler	Florida Fish and Wildlife Conservation Commission
Dr. Roger Portel	University of Florida
Mr. Darrell Scovell	Florida Fish and Wildlife Conservation Commission
Mr. Lyle Seigler	Florida Department of Transportation
Mr. Brad Smith	Florida Fish and Wildlife Conservation Commission
Ms. Rachel Terry	Gulf Power Company
Ms. Angela Williams	Florida Fish and Wildlife Conservation Commission
Mr. Randal Wilson	North Carolina Wildlife Resources Commission

ATTACHMENT 14.

References Used in the Development of this Petition

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ATTACHMENT 15.

THE CRUX OF THE MATTER

Man's elimination of fire and its deforestation of flatwoods might have dealt P. econfinae a fatal blow had not man at the same time inadvertently come to its aid and developed suitable habitat. Man has provided cleared and maintained areas such as powerline easements and roadside ditching.

Because man is not likely to let fire have its way in the near future, it will make little difference what goes on in the flatwoods (planting of pines, etc.) excepting that any future development that includes cleared areas or roadside ditches will offer P. econfinae new opportunities that it otherwise probably would not have had.

I have not been able to find P. econfinae in the flatwoods and believe that this is most likely the case for other workers as well. A figment of the fireless environment is a vegetative overstory that is not suitable for P. econfinae. The idea that future development in the Panama City area will be detrimental to the crayfish just doesn't have legs.