FWC Staff Note 1 October 5, 2001

The petition entitled "An Emergency 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 a Threatened Species (68A-27.004 F.A.C.)" was submitted as an emergency petition. Staff evaluated the submitted petition and determined that it did not meet the emergency standard in Rule 68A-27.0012(1)(d). Therefore, the petition is being handled as a regular petition.

Bureau of Wildlife Diversity Conservation
AUG 2 2 2001

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

August 20, 2001

Mr. Frank Montalbano, Director
Division of Wildlife
Florida Fish and Wildlife Conservation Commission
620 South Meridian Street
Tallahassee, Florida 32399-1600

Dear Mr. Montalbano:

The enclosed emergency petition to reclassify the Panama City Crayfish, *Procambarus (Leconticambarus) econfinae*, Hobbs, 1942, from a Species of Special Concern to Threatened is offered for your consideration. The Panama City Crayfish was first collected by Dr. Horton Hobbs in 1938 from two locations in Bay County , Florida, and Dr. Hobbs published the description of this species in 1942 along with all the information he had pertaining to it. About 30 years after this, this species was collected from a third location in Bay County. It was listed as a Species of Special Concern after that discovery. However, this species was, by and large, forgotten until recently when a few individuals began to ask questions about the status of the species. There were some who considered it to be extinct. To obtain an answer to that question, a limited survey was conducted to attempt to locate the species at the type locality and the two other collection sites. Based on the results of that survey, another more intensive survey was conducted and the species was determined to exist in the remaining seemingly natural and often altered habitat available to it. The information provided by those surveys and information obtained subsequent to those surveys provide the basis for the attached petition.

Although one could be optimistic that this petition would be met with enthusiastic support by those responsible for our natural resources, there are indications that this optimism may be unjustified. This speaks to the need for the Florida Fish and Wildlife Conservation Commission to provide the necessary status and management plan to assure the survival of the Panama City Crayfish that is not only endemic to the state of Florida but to a quite small area within Bay County, Florida. Should we not maintain the species diversity of our state and Bay County, particularly when doing so will not prevent the current and future rapid growth in the human population, only make it more responsive and responsible to our natural resources? I believe that we should and can accomplish both with the help and guidance of the agencies responsible for the management of those natural resources. In this case, the Florida Fish and Wildlife Conservation Commission.

Thank you for the opportunity to submit this petition and the supporting information. If I can be of assistance or provide additional information, I would be pleased to do so. I can be contacted at the above address or at 850/769-6247.

Sincerely yours,

Edwin J. Keppner

Edwin J. Keppner, Ph.D.

An Emergency 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 a Threatened Species (68A-27.004 F.A.C.).

Submitted to: The Florida Fish and Wildlife Conservation Commission

Submitted by: Edwin J. Keppner, Ph.D.
4406 Garrison Road
Panama City, Florida 32404

Date: August 20, 2001

Signature: Edwin J. Keppner

Introduction.

The purpose of this petition is to request that the Florida Fish and Wildlife Conservation Commission (FFWCC) change the listing of the Panama City Crayfish from the current status as a Species of Special Concern (68A-27.005 F.A.C.) to a status as a Threatened Species (68A-27.004 F.A.C). This emergency action is necessary to immediately protect the survival of this species at the currently known sites that are scheduled for alteration immediately or within the next year or so, and those habitats and populations that re conceivably threatened within the next 10 years or so.

Reasons the Action is Necessary: The following reasons are offered in support of the requested action.

1. The current known distribution of this species on a world-wide basis is limited to an area of approximately 25,600 acres (40 square miles) of Bay County, Florida.

2. The currently known number of populations of this species is 22 within the known range.

3. Each population, as currently known, occupies less than about 1.5 acres in area.

4. This species is restricted to certain soil types and the habitats associated with those soil types within the known range. Therefore, it can be considered as having a fragmented distribution within its range.

5. The projected loss of populations and decline in area of occupancy, area and quality of habitat, and number of locations of populations within the next 10 years is suspected or projected to exceed 50% of the known populations. This statement is based on the current and future rapid residential and commercial development occurring within the known range and habitats of this species, maintenance of infrastructure, and expansion of infrastructure. These activities can alter or permanently remove the remaining habitat and the known populations in the absence of a plan to assure the survival of this species. A number of projects that would alter habitat and populations are discussed below.

6. A management plan is necessary now to assure the survival of this species by addressing the threats to the species that will occur in the near future and within the next 10 years.

Information in Support of the requested Action: This species appears to have been forced into their present available habitats by silvicultural activities and residential and commercial development within its range. Many known sites are in roadside swales and ditches that are dredged periodically and are disturbed for the placement of utility lines. One known site (north side of 26th Street) has been dredged in the last few months and the bottom is now a box cut, a method that appears to exclude this species (see Appendix 2). A major population of this species inhabits swales along County Road 389. According to Bay County, these swales presently require

dredging due to reported flooding of newly constructed commercial and residential development on fill material adjacent to the swales or near the swales. The southern extension of this swale-ditch habitat was severely altered last year for the placement of a water line. Crayfish have not been observed in the area of construction since this activity was completed. It appears that all of the swale-ditch populations of this species are threatened by maintenance and additions of infrastructure actually or potentially in the near future. The populations in the swales along Industrial Drive appear quite vulnerable to a variety of activities. Construction has recently been initiated in the soil types that provide habitat for this species along Industrial Drive. The populations in the swales on the west side of Star Avenue immediately south of Highway 231 are adjacent to a borrow pit and probably subject to a variety of perturbations. The site on Minnesota Avenue has been permitted for the construction of a commercial facility (Super Walmart Store, I think).

In response to a threat to a known population of this species, a member of the FFWCC has worked closely with a contractor to move a pipeline from the center of a ditch-swale habitat to the edge of the habitat. Sampling after the construction of the pipeline established the presence of this species in the undisturbed habitat. In the absence of this effort by the FFWCC and the cooperation of those laying the pipeline, this population would have been severely, adversely impacted or lost. This action by the FFWCC and the cooperation of the pipeline people lend credence to the expectation that Best Management Practices for the activities threatening this species are achievable through changing the status of this species to threatened and developing a management plan to ensure the survival of this species.

The populations surviving along the power line right-of-ways (ROW) appeared secure until plans surfaced that will alter the habitat and populations identified in these areas. The planned placement of a pipeline in a ROW that supports populations and habitat of this species threatens to permanently and temporarily alter these habitats and populations along the entire length of the ROW. The proposed area of impact is about 40 feet wide to dig the trench and side-cast the excavated material for the length of the ROW. It does not appear unreasonable to suspect that an additional unspecified area will be also be altered by the equipment used in digging and laying the pipeline. The ROW is approximately 100 feet wide. Therefore, at least, 40% of the width of the habitat of each population will be adversely impacted. This project has progressed to near the stage of applying for any required state and/or federal permits.

Another ROW that supports populations of this species is scheduled for maintenance work involving the replacement of wooden power poles with new supports. This work appears less disruptive than the pipeline project because avoidance measures and reduction of adverse impacts at each replacement site appear feasible. The Gulf Power Company has expressed interest in working with your agency and others to conserve this species along their ROWs and are in the process of addressing methods to avoid and reduce impacts to the habitat and populations along this ROW that may result from the replacement of the existing wooden power poles.

The areas within the range of this species that are currently in silviculture are proposed for

development in the future. Although the species probably does not currently exist under the closed canopy and drained areas of silviculture, this agricultural activity appears to have played a role in forcing this species into the remaining open areas with the appropriate soil types and hydrology. The residential and commercial development of these areas of silviculture may directly alter or destroy habitat and populations of this species that may remain in these areas. Development of these areas will also require the construction and placement of additional infrastructure that will adversely impact the habitat and populations of this species present in the areas of infrastructure work.

Confirmation of the existence of the projects mentioned above can be obtained from Gulf Power Company, Bay County Roads Department, Bay County Property Appraisers Office, and/or your Regional Office in Panama City, Florida. In summary, of the 22 known sites for this species, eight or 36% are facing immediate threats (1 month to about 1 year) and the remainder face threats in the near to distant (10 years) future.

Biological Information

The information pertaining to the biology of the Panama City Crayfish that is known to me is included in the reports entitled "A Preliminary Search for the Panama City Crayfish, *Procambarus* (*Leconticambarus*) *econfinae* Hobbs, 1942 in Bay County, Florida" submitted to the U.S. Fish and Wildlife Service in June of 2000 (Appendix 1) and "A Survey and Conservation Status of the Panama City Crayfish" that was submitted to the U.S. Fish and Wildlife Service in June 2001 (Appendix 2). These reports address the information requested in the guidelines for this petition. However, additional information has been obtained following submission of those reports and is included below.

Additional Information, Distribution. 1) New Sites. Since the submission of the above referenced report, three additional sites for the species have been located, and an additional soil type added to the list of soil types providing physical habitat for the species. One site is located along a railroad track at the corner of 19th Street and Lisenby Avenue in Panama City Florida, a highly developed area. The additional soil type is Leon Sand as defined in Duffee et al. (1984). Two additional sites for this species have been located along a powerline that crosses Star Avenue at the Gulf Power Company transfer station on Star Avenue. These new site locations and soil type have been provided to your Regional Office in Bay County. Additional populations will undoubtedly be located as the search for them continues.

2) Fragmentation of Populations. The populations of this species are fragmented by the nature of the occurrence of their habitat. The habitat is patchy within the range of the species as one would expect. The populations are normally isolated from on another by unsuitable soil types and habitats or artificial barriers. Natural recolonization of a particular patch of habitat from which this species has been extirpated is not assured. Interchange of individuals between the naturally and artificially fragmented habitats may occur during times of very high rainfall events when surface water covers and connects the unsuitable habitats and soil types between populations.

However, the frequency of the occurrence of these conditions may be low to very low. Drought, such as we have experienced for the last three years, would restrict interaction between habitat fragments.

In the artificial habitats of swales and shallow ditches, recolonization of damaged habitats or areas from which the species has been extirpated may occur under normal precipitation events. Water flowing through the ditches and through culverts may offer a connectivity between habitats along the linear flow of these structures on a regular basis. However, the habitat to be recolonized must be suitable for recolonization. The habitats supporting the known populations of this species are all vegetated with a variety of grasses and forbs. Non-vegetated areas may not provide the food, protective cover, or other essentials necessary for the survival of the species. Therefore, recovery may be slow or absent in those linear habitats where activities have occurred that remove a portion of a population and/or remove the essential habitat components necessary for survival of immigrants. Removal of the species from an entire length of these artificial habitats may never recolonize due to the absence of a connected population.

In summary, the assumption that damaged habitats and lost populations will be replaced naturally may not be true, specifically or in general. Care should be taken in accepting that the alteration of a given population is justifiable because the habitat will replace itself and the crayfish will return when the habitat is again suitable for it. Indications from the alteration of the ditch along County Road 389 south of Mowat Highlands, indicates that restoration of habitats and recovery of crayfish populations may not occur under conditions of severe alteration.

Additional Information, Threats. Additional information in support of the supposition that development and silviculture have acted to force this species from its natural habitat and continues to alter its habitat and populations includes the examination of aerial photographs of three areas supporting populations of this species. Appendix 3A is an aerial photograph of the area of the populations in the swales and ditch along the east and west side of County Road 389 in Bay County, Florida taken in 1999. The locations of the populations are outlined in black and the swales scheduled for maintenance are located on the west side of the road. Appendix 3B is the same area on a photograph from 1971. The alterations in the biotic communities present in the area between the 1971 and 1999 photographs are evident. The same alterations will occur as the remaining suitable habitat within the range of this species becomes developed or otherwise altered.

Appendix 4 is an aerial photograph of the junction of Highway 231 and Star Avenue. The location of the swales adjacent to the borrow pit are marked in black. It is apparent that this area is susceptible to alteration in the near future through swale maintenance, road widening, road shoulder improvement, and placement of utility lines.

Appendix 5 is an aerial photograph of the junction of Nehi Road and Star Avenue. This photograph demonstrates the extent of silviculture over a broad area of the range of this species. It also shows the powerline ROW that will be altered for the pipeline. Populations of the crayfish

have been located along this powerline ROW both east and west of Star Avenue.

A more indefinite but possibly realistic threat to the survival of this species is the paucity of qualified crayfish taxonomists to accurately identify and differentiate this species from the other species that occur within its range. It is my understanding that there are only a few individuals who have seen this species alive or as preserved specimens. Private and public entities that plan activities that would alter or destroy the habitat or populations of this species normally enlist the aid of environmental consultants to assess the wetlands, presence of protected species, etc. of a given area. The ability of environmental consultants to perform the necessary surveys for this species and identify the species accurately, may vary. This could result in the presence of the species being overlooked or of it being confused with another species. Should this occur, populations could be lost unknowingly. Conversely, the lack of experience with crayfish taxonomy could result in the location of populations of other species being recorded as the species in question. This would artificially inflate the number of occurrences and result in unnecessary hardship to the private or public entity seeking to develop or otherwise alter a piece of land or prevent the adequate protection of the species. Therefore, accuracy in surveys and identification is important in the determination of the presence or absence of this species at a given site. Education of those conducting the surveys would minimize the possibility of occurrence of the above situations.

Lastly, the habitat of this species may not qualify as jurisdictional wetlands for the state and federal agencies that issue permits for the alteration and/or irretrievable loss of wetlands. Even if a given population of this species and its habitat were within the permitting jurisdiction of the agencies, the agreed upon mitigation, if any, may not include adequate conservation of this species on the site even if its presence was identified. To rely on existing wetland permitting and mitigation procedures in the absence of a management plan for the presence of this species, would not offer assurance of its survival. This is particularly relevant to those populations existing in roadside swales. However, the Florida Department of Environmental Protection recognizes the importance of swales in the their educational brochure entitled "Save the Swales". A copy is provided as Appendix 6.

Information Pertaining to the Definition of a Threatened Species. The following criteria of designation as Threatened appear to apply to this species.

A) *A population reduction of at least 50%, projected or suspected to be met within the next 10 years based on a decline of occupancy, extent of occurrence and/or quality of habitat.* The possible loss of the population on the north side of 26th Street from recent work, and the existing, immediate threats to the largest known populations which exist along County Road 389 and the Star Avenue powerline ROWs could, if completed as planned, eliminate or severely reduce these populations thereby reducing the known population density quite significantly in terms of number of individuals now existing. The proposed work would also reduce the quality and quantity of available habitat. As stated above, of the 22 known sites for this species, eight or 36% are facing immediate threats (1 month to about 1 year) and the remainder face threats in the near to distant

(10 years) future. In the absence of an appropriate management plan for the survival of this species, an estimate that the species will face extinction within 10-20 years is not excessive.

B) *Extent of occurrence estimated to be less than 2,000 square miles or an area of occupancy estimated to be less than 200 square miles, and estimates indicating any of two of the following.* 1). The extent of occurrence is approximately 40 square miles, and the probability is quite low that the range of this species will be extended significantly or at all eastward or northward (only directions that expansion would be likely). Similar habitats outside of the range of this species are occupied by other species. 2). The area of occupancy within the approximate 40 square mile range is not completely known, but is certainly less than 40 square miles because the entire area does not consist of the correct soil types and vegetation. A large area of actual or potential natural habitat has been permanently altered by development and agriculture. 3). The habitat for this species is declining in quality and quantity as a result of the actions discussed above and demonstrated in Appendix 3A & B. 4). Although new sites for this species will undoubtedly be located within its known range, any new sites will be subject to the same threats to the quality and quantity of habitat and the existence of the populations as discussed above. The range of this species is, unfortunately, the highly desired area for development in this county.

Literature Cited

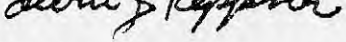
Duffee, E.M., Baldwin, R.A., Lewis, D.L., Warmack, W.B. 1984. Soil survey of Bay County, Florida. U.S. Depart. Agric., Soil Conserv. Serv. 151 pp. + maps.

Petitioner Information

Name of Petitioner: Edwin J. Keppner, Ph.D.

Address of Petitioner: 4406 Garrison Road
Panama City, Florida 32404

Date: August 20, 2001

Signature of Petitioner: 

Telephone Number: 850/769-6247

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Organization: Citizen of Florida of Bay County from 1980 to date, citizen of Florida since 1979.

The petition entitled "An Emergency 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 a Threatened Species (68A-27.004 F.A.C." included six appendices. To conserve resources, these appendices are not included. If you would like to review one or more of these appendices, please contact Dr. Brad Gruver, Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600, (850) 488-3831.

Appendix 1. A preliminary search for the Panama City crayfish, *Procambarus (Leconticambarus) econfinae* Hobbs, 1942, in Bay County, Florida.

Appendix 2. A survey and conservation status of the Panama City crayfish.

Appendix 3A and 3B. Aerial photographs of the County Road 389 sites.

Appendix 4. Aerial photograph of the sites at the junction of Highway 231 and Star Avenue.

Appendix 5. Aerial photograph of the powerline ROW at Star Avenue and Nehi Road.

Appendix 6. Save the Swales education brochure.

The petitioner submitted several addendums to the petition entitled "An Emergency 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 a Threatened Species (68A-27.004 F.A.C." included six appendices. To conserve resources, these addendums are not included. If you would like to review one or more of these addendums, please contact Dr. Brad Gruver, Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, Florida 32399-1600, (850) 488-3831.

Addendum 1 provides additional information that the petitioner states supports the idea that silvicultural activities have been a factor, along with other factors, in forcing the Panama City crayfish into its current altered habitats.

Addendum 2 provides additional information about the current status of three crayfish sites recently visited by the petitioner.

Addendum 3 (entitled Addendum 2 by the petitioner) provides additional information on the historical and existing range of the crayfish, and areas of development within the historic range of the crayfish.