

MEMORANDUM

TO: Implementing Committee

FROM: Robert L. Gulley, Executive Director, Habitat Conservation Program
Jenna B. Cantwell, HCP Coordinator

DATE: June 5, 2013

RE: Incidental Take Protection Provided by Incidental Take Permit #TE-63663A-0

On March 18, 2013, the United States Fish and Wildlife Service (FWS) issued Incidental Take Permit TE-63663A-0 (ITP) to five applicants representing the efforts of the Edwards Aquifer Recovery Implementation Program. These five applicants are the Edwards Aquifer Authority (EAA); the City of San Antonio acting by and through its San Antonio Water System (SAWS); the City of San Marcos; the City of New Braunfels; and Texas State University (TSU) (collectively, the "Permittees").

Section 11.H of the ITP sets out the scope of incidental take protection provided for each covered species over the 15-year term of the permit. The Biological Opinion (BiOp)¹ accompanying the ITP sets out the basis that FWS used to determine the allowable incidental take. The ITP sets out specific annual reporting requirements documenting compliance with the ITP and the terms and conditions of the permit. ITP §T.2.

Section 9 of the Endangered Species Act prohibits the "take" of threatened and endangered species, including the attempt or an action to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" such species. (16 U.S.C. § 1532). Incidental take is take that is "incidental to, but not the purpose of, otherwise lawful activities." 16 U.S.C. § 1539(a)(1)(B).

Allowable Incidental Take

The amount of incidental take allowed under the permit is set out in Table 1. For the listed species, the allowable amount of take is expressed in terms of the number of actual individuals of each species that can be taken incidental to the covered activities. In the BiOp, FWS states that most "incidental take, or impacts, from covered activities are expected to occur in the form of harm and harassment through direct loss of habitat."² BiOp at 88. With respect to the non-listed species covered by the EAHCP, the Comal Springs salamander, Texas cave diving beetle, and the Texas troglobitic water slater, the allowable take "if and when the species is listed" is expressed in terms of whether or not the minimum flow objectives

¹ Biological and Conference Opinions for the Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan -- Permit TE-63663A-0 (Consultation No. 21450-2010-F-0110). Austin Ecological Services Field Office, 2013.

² The term "harm" is defined to include any act "which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." (50 C.F.R. § 17.3). The term "harass" is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." (50 C.F.R. § 17.3).

for the HCP are satisfied. No incidental take of these species will be covered if the minimum flow rates are exceeded. ITP §§ H.7, H.8 and H.9.

Basis for the Allowable Incidental Take Determination

The Biological Opinion sets out the methodology that FWS used to determine the incidental take numbers for each listed species.³ FWS recognized the difficulty in quantifying the actual numbers of individual species taken pursuant to the ITP. BiOp at 88. Therefore, FWS used surrogates for determining the allowable amount of take for each species.

With regard to Drought of Record (DOR)-like conditions, FWS assumed that only one such event will occur during the permit term and that it will last seven years. For these conditions, minimum flow levels were used for each of the listed species as a surrogate to calculate allowable incidental take.

FWS assumed that non-DOR conditions (referred to as years of average conditions) will exist for eight years during the term of the permit.⁴ FWS used the quantity of habitat affected as a surrogate in determining the allowable incidental take for these conditions. *Id.*

Table 2 summarizes the assumptions used in determining the allowable take for each of the listed species. Allowable take calculations for fountain darters in Comal Springs and the San Marcos River were calculated based on disturbance of occupied habitat. By contrast, the allowable incidental take for the remaining listed species was based on disturbance of available or suitable habitat.

The following example illustrates how FWS made its allowable incidental take determination for the fountain darter in the San Marcos Springs system. The allowable incidental take of fountain darters over the term of the permit is 549,128 individuals. FWS assumed that during DOR-like conditions continuous springflows will be maintained in the San Marcos River and will dip to approximately 50 cfs for no more than 30 days during Phase I and for no more than 15 days during Phase II. BiOp, at 116. FWS assumed that there are 480,000 individuals in the San Marcos River system. *Id.* at 59. It assumed that losses between 50 and 94% will occur during DOR-like conditions. *Id.* at 116 (citing HCP § 4.2.2.2 at 4-128). Apparently using the upper end of the estimate, FWS concluded that if the minimum flows are maintained, up 450,000 individual fountain darters will be subject to “displacement, injury, or death as a result of this action” in the San Marcos River.⁵ *See* HCP at 4-128.

With respect to the non-DOR conditions, FWS assumed that as a result of sediment removal, water-based recreation, non-native species management, operation and maintenance of flow management infrastructure and similar activities up to 10% of the fountain darter habitat in the San Marcos River and no more than 2.5% of suitable fountain darter habits would be affected.⁶ BiOp at 117. It assumed further that up to 10% of the fountain darters would be impacted in these areas. *Id.* Using these assumptions FWS concluded that in an average year 4,800 individual fountain darters would be taken annually in the San Marcos River (or 38,400 individuals during the eight average years). Similarly, the activities will

³ FWS does not fully explain the basis for the allowable incidental take for the Texas blind salamander.

⁴ *See* ITP §§ M.1.b and M.2.b (requiring suspension of habitat and riparian restoration during periods of low flow).

⁵ The Biological Opinion did not include an assessment of the potential incidental take in Spring Lake during DOR-like conditions.

⁶ *See* ITP § M.2.a.

result in the incidental take of 7,591 individuals annually in Spring Lake in the eight average years during the permit term (or a total incidental take of 60,728 individuals during the permit term). In total, the incidental take of 99,128 individuals during average conditions over the duration of the permit combined with the 450,000 fountain darters assumed to have been taken incidentally in the San Marcos River during a repeat of DOR-like conditions resulting in the allowable incidental take of 549,128 individual fountain darters during the term of the permit.

Specific Terms and Conditions

Both the Comal and San Marcos spring systems have terms and conditions in the ITP that are pertinent to the incidental take determinations. *See Figure 1.* First, with respect to the Comal and San Marcos systems, the ITP prohibits the disturbance of more than 10% of the occupied habitat for each species. Second, the ITP requires suspension of habitat disturbance activities when the springflows in the Comal System decline to 130 cfs or lower and when the springflows in the San Marcos System decline to 120 cfs or lower.

Establishing Compliance with the ITP

The ITP requires the Permittees to document permit compliance for the previous year in the Annual Report. ITP § 11.T. To satisfy this requirement we will have to demonstrate that the implementation of the restoration measures complies with the permit's terms and conditions, including the requirement that Permittees limit disturbance of habitat due to restoration measures to no more than 10% of each species' habitat.⁷ This limitation applies to "disturbance" of substrate, water quality, plants, or animals (*i.e.*, covered species) by activities that "may directly or indirectly" affect the species.

Documentation of compliance with this term and condition in the first Annual Report will require a determination of the baseline condition, *i.e.*, the amount of occupied habitat by each species on or about the time of permit issuance. Second, we will need evidence of the areas in which restoration activities occurred during the permit year. Finally, we will need to determine the new baseline for the upcoming year.

The Initial Baseline

With respect to the initial baseline determination, BIO-WEST biological monitoring reports for the Spring, Summer, and Fall of 2012 and the Spring monitoring program this year will, among other purposes, be used to establish the initial baseline. In addition, this Spring, BIO-WEST has completed its first full system aquatic vegetation mapping in both Spring systems that also will contribute to this baseline determination. This mapping included dip net samples that will be used to augment the "reach" samples taken in the monitoring in the Spring and Fall of 2013. Dr. Hardy also has extensive data on suitable and occupied habitat for the different species in the San Marcos system. BIO-WEST and Dr. Hardy have agreed as part of their on-going work this year to sample, as needed, to identify occupied San Marcos salamander habitat in the inter-reach areas of potential habitat. BIO-WEST will conduct any needed additional sampling that may be necessary for the Comal Springs riffle beetle and Comal Springs dryopid beetle. Collectively these data will be used by EAHCP staff working, with the consultants, to prepare GIS maps of the baseline habitat for each species.

⁷ FWS has said that habitat in this instance means occupied habitat as opposed to suitable habitat.

Evaluating Compliance

Most of the restoration contractors in both the Comal and San Marcos systems have already been documenting with GIS the areas in which they are conducting work. We have spoken with Melani Howard (City of San Marcos and Texas State University) and Zachary Martin (City of New Braunfels). They will ensure that all of their respective contractors working in the system will prepare GIS maps of the areas in which they are conducting restoration activities in 2013. All of the final data should be submitted to EAHCP Staff by December 31, 2013. Interim information regarding the amount of disturbance should be submitted, when it is reasonably available, to enable us to track the status of compliance.

The ITP set the amount of incidental take allowable over the permit term. It does not set an allowable annual level of incidental take for the listed species. As such, no demonstration of annual compliance with a specific incidental take amount is expressly required to be included in the Annual Report. FWS, however, expects the Permittees to provide data in the Annual Report from which it will be able to track the estimated amount of incidental take occurring over the course of the permit. If, from that data, FWS believes that the allowable incidental take numbers may be exceeded during the permit term, it may require the Adaptive Management Process be used to ensure compliance.

The methodology FWS used to make the allowable incidental take determinations provides useful guidance on how to estimate the annual amount of incidental take in the Annual Report. Unless DOR-conditions have been declared (an annual 10-year rolling recharge of 500,000 acre-feet), the flow-analysis will not be necessary. The documentation of compliance with the 10% occupied habitat disturbance restriction in the permit's terms and conditions should be sufficient evidence that excessive incidental take is not occurring for fountain darters in the Comal system and in the San Marcos River. For the other listed species for which the calculation of allowable take was based on suitable habitat and assumptions of disturbance less than 10%, estimates of annual incidental take should be able to be gleaned from the same data sets described above.

A new baseline must be established annually. The spring Bio-monitoring Program, with some augmentation, as needed, for species such as the San Marcos salamander, and presence/absence sampling of relevant species where new potential habitat has been established will be used to establish any changes in the amount of occupied habitat for the subsequent year. Annually, identified lost habitat will be consolidated with the existing baseline to determine subsequent year baseline information as follows:

Previous Baseline Habitat + New Verified Occupied Habitat - Loss of Habitat = New Baseline Habitat

TABLE 1: INCIDENTAL TAKE COVERAGE	
Comal Springs System	
Listed Species	Allowable Incidental Take
Fountain darter	≤797,000
Comal Springs riffle beetle	≤11,179
Comal Springs dryopid beetle	≤1,543
Peck's Cave amphipod	≤18,224
Petitioned Species	
Comal Springs salamander	If and when this species is listed, incidental take protection will be provided for take from monthly average springflows above 27 cfs during Phase I of the HCP and continuous springflows above 45 cfs during Phase II as long as the HCP is fully implemented.
San Marcos Spring System	
Listed Species	Allowable Incidental Take
Fountain darter	≤549,129
San Marcos salamander	≤263,857
Texas blind salamander	≤10
Petitioned Species	
Texas cave diving beetle	If and when this species is listed, incidental take protection will be provided for take from springflows with monthly average above 50.5 cfs during Phase I of the HCP and from springflows with monthly averages above 51.2 cfs during Phase II as long as the HCP is fully implemented
Texas troglobitic water slater	If and when this species is listed, incidental take protection will be provided for take by springflows with monthly averages above 50.5 cfs during Phase I of the HCP and by springflows with monthly averages above 51.2 cfs during Phase II as long as the HCP is fully implemented.
Special Species	
Texas wild-rice	Take is not prohibited for this species
San Marcos gambusia	Incidental take is protected if this species is located or becomes established within the Permit Area as long as HCP is fully implemented

TABLE 2: BASIS FOR FWS'S ALLOWABLE INCIDENTAL TAKE DETERMINATIONS

Species	Assumptions for Take Numbers			
Comal Springs System				
	Flow Assumptions	Flow-related Take	Habitat Disturbance Assumptions	Habitat Disturbance-related Take
Fountain darter	Continuous flow will be maintained and the flows will not dip below 30 cfs for more than 75 days during Phase I and 45 cfs for more than 30 days during Phase II	735,000 individuals	10% fountain darter habitat will be impacted by HCP implementation activities in any average year conditions in Comal River	62,000 individuals
Comal Springs riffle beetle ¹	Continuous flow will be maintained and the flows will not dip below 30 cfs for more than 75 days during Phase I and 45 cfs for more than 30 days during Phase II	10,739 individuals	5% available surface habitat will be impacted by riparian restoration measures	440 individuals
Peck's cave amphipod	Continuous flow will be maintained and the flows will not dip below 30 cfs for more than 75 days during Phase I and 45 cfs for more than 30 days during Phase II	17,360 individuals	5% available surface habitat will be impacted by riparian restoration measures	864 individuals
Comal Springs dryopid beetle	Continuous flow will be maintained and the flows will not dip below 27 cfs during Phase I and 45 cfs for short periods during Phase II	1,471 individuals	5% available surface habitat will be impacted by riparian restoration measures	72 individuals
San Marcos System				
Fountain darter	Continuous flow will be maintained and the flows will not dip below 50 cfs for more than 30 days during Phase I and for 15 days during Phase II	450,000 individuals	10% fountain darter habitat could be impacted by HCP implementation activities in San Marcos River and 2.5% suitable fountain darter habitat in Spring Lake	99,128, including 38,400 individuals in the San Marcos River and 60,728 individuals in Spring Lake
San Marcos salamander	Continuous flow will be maintained and the flows will not dip below 50 cfs for more than 30 days during Phase I and for 15 days during Phase II	233,361 individuals	10% San Marcos salamander suitable habitat in San Marcos River and Spring Lake could be impacted by HCP implementation and water-based recreation activities	30,496, including individuals 1,232 individuals in the San Marcos river and 29,264 individuals in Spring Lake
Texas blind salamander	no specific assumptions			

(1) The Comal Springs riffle beetle has also been found in Spring Lake but no allowable incidental take is assigned with respect to these individuals

FIGURE 1: Pertinent Terms and Conditions

Comal Springs

The Permittees will limit disturbance of the (a) substrate, (b) water quality, (c) plants, and (d) animals of the Comal Springs, Landa Lake, and Comal River to no more than 10% of the occupied habitat on an annual basis when implementing HCP measures such as habitat and riparian restoration efforts that may directly or indirectly affect species considered here. ITP § M.1.a

The Permittees will suspend activities such as habitat restoration and riparian restoration that may result in disturbance of the (a) substrate, (b) water quality, (c) plants, and (d) animals or invertebrates of the Comal Springs, Landa Lake, and the Comal River when Comal Springflows decline to 130 cfs or lower. ITP § M.1.b

San Marcos Springs

The Permittees will limit disturbance of the (a) substrate, (b) water quality, (c) plants, and (d) animals of the San Marcos Springs, Spring Lake, and the San Marcos River to no more than 10% of the occupied habitat on an annual basis when implementing HCP measures such as habitat and riparian restoration efforts that may directly or indirectly affect species considered here. ITP § M.2.a

The Permittees will suspend activities such as habitat restoration and riparian restoration that may result in disturbance of the (a) substrate, (b) water quality, (c) plants, and (d) animals or invertebrates of the San Marcos Springs, Spring Lake, and the San Marcos River when San Marcos Springflows decline to 120 cfs or lower. ITP § M.2.b