

**CITY OF TUCSON
HABITAT CONSERVATION PLAN
Technical Advisory Committee
May 24, 2005 1:00 – 4:00pm
Arizona Game and Fish Department Conference Room
555 N. Greasewood Road**

Meeting Summary

Attendees: Trevor Hare, Ralph Marra, Ann Phillips, Dennis Abbate, Mima Falk, Guy McPherson, Rich Glinski, Linwood Smith, Michael Wyneken (City of Tucson – Planning), Leslie Liberti (SWCA), Ken Kertell (SWCA), Ken Kingsley (SWCA), Jessica Lee (SWCA)

1) Update on Recent SAC Meetings/Upcoming Meetings

a. *Scheduled SAC Meetings:*

- **May 26**, 3-5pm @ AGFD. Tentative Topics: Detailed information on Avra Valley and Santa Cruz River planning areas.
- **June 22**, 1-4pm @ AGFD. Joint Meeting with TAC. Tentative Topics: (1) Introductions, (2) Biological stressors and threats, (3) Initial conservation strategy thoughts, (4) Presentation on Pima County's species-specific mitigation strategies.
- **July 13**, 3-5 pm, @ AGFD. Tentative Topics: Conservation measures for Southlands species and implementation options.
- **July 27**, 3-5 pm, @ AGFD. Tentative Topics: see previous meeting.
- **August 17**, 3-5 pm, @ AGFD. Tentative Topics: Conservation measures for Avra Valley species and implementation options.
- **August 31**, 3-5 pm, @ AGFD. Tentative Topics: Conservation measures for Santa Cruz River species and implementation options.

b. *Scheduled TAC Meetings:*

- **May 27**, 8-11am @ AGFD. Tentative Topics: Biological stressors/threats for species not covered May 3 or 24.
- **June 7**, 1-4 pm @ **USFWS**. Tentative Topics: Biological goals, objectives, and initial conservation measures for Southlands species.
- **June 22**, 1-4pm @ AGFD. Joint Meeting with TAC. See above.
- **July 12**, 1-4 pm, @ AGFD. Tentative Topics: Conservation measures for Southlands species.
- **July 26**, 1-4 pm, @ AGFD. Tentative Topics: Biological goals, objectives, and initial conservation measures for Avra Valley species.
- **August 9**, 1-4 pm, @ **USFWS**. Tentative Topics: see previous meeting.
- **August 23**, 1-4 pm, @ AGFD. Tentative Topics: Biological goals, objectives, and conservation measures for Santa Cruz River species.

2) Old Business

a. Meeting Minutes – Discussion/Approval of March 22 and April 11, 2005 Minutes

Leslie asked if anyone had comments on the March 22 or April 11 minutes. The only comments received were regarding the April 11 minutes; Dennis provided some good clarifications and the version that was sent out the first week in May was the revised minutes. Leslie asked if everyone was okay with them. No one had any comments. The TAC members indicated that the minutes were all acceptable as written. Leslie said the minutes will be posted on the website shortly. The only set of meeting minutes that hasn't been approved is that from the last meeting (May 3). Leslie said she would like TAC to review the May 3 meeting minutes so they can be discussed/approved at the Friday meeting (May 27).

b. Action Items from Previous Meeting – Mexican Spadefoot Toad

Trevor said he has not talked to Phil about the toad. Trevor feels that toad assemblages in the Southlands and Avra Valley should be conservation targets or conservation recommendations. Trevor said that he will talk to Phil about coming up with some recommendations for toads.

c. Topics Held Over from Previous Meeting

Leslie said that there were no topics held over from the previous meeting (May 3).

3) New Business

a. Pygmy-owl Update

Leslie asked Dennis Abbate to give an update on CFPO, including any new information on the female that they have been tracking through Altar Valley this spring. Dennis said that the female, which they have been tracking since last season, is a young bird that has not breed yet and has moved a lot recently. Dennis noted that this is the second female that they have been able to track for an extended amount of time. Dennis said that the bird had recently come up to a City of Tucson parcel in the northern part of Altar Valley; she had either landed on the property or had gotten extremely close. Since that time the owl has gone around the Sahuarita Mountains, across Altar Valley, almost jumped over the Baboquivari Mountains, and is now moving south. AGFD's last contact with her was on Friday (May 20), and at that time, she was southeast of Mildred Peak near Baboquivari Peak.

Dennis pointed out that preserving connectivity and enhancing areas to allow for better connectivity and dispersal is a more important concern for the Tucson HCP than concentrating on the possibility of supporting breeding on City of Tucson property. The fact that there have been two birds in the last two years that either settled momentarily on City of Tucson property, or came very close to those parcels, suggests and lends support to the fact that the TAC needs to focus on these lands as potential dispersal habitat, which is important for connecting populations in the Altar Valley to the Southlands and to other populations that are hanging on in Northwest Tucson or Pinal County.

Leslie thought that there were still about twenty adults in Arizona this year. Dennis confirmed that number and said that AGFD has been monitoring a number of nest sites. Dennis noted that the Department has found four nest sites in Altar Valley this year, although there might be one or two more. Tim Tibbitts, from the National Park Service, said that Organ Pipe Cactus National Monument might have one nest site. AGFD is thinking that there will be between four and seven nest sites in Arizona. Dennis pointed out that, although 4 to 7 nests does not sound not like much, it is a jump up from the last few years when AGFD only documented four nest sites.

Dennis explained that the survey team has not been able to do the exhaustive surveying and monitoring that needs to be done to determine whether or not this is a real increase in the population. From the limited amount of work AGFD is doing, it seems like an increase. Rich asked if the Altar Valley nest sites are new. Dennis said that one site was previously occupied, then unoccupied for two years, and then all a sudden it is occupied again. Dennis said another of the nest sites was new last year. The third nest site is a new site, and the fourth was known from previous years. The two additional nests that may be in Altar Valley this year are also historic nest sites.

Ken Kingsley asked if the owls that used these nest sites in previous years are the same owls that are nesting there this year. Dennis said it is a challenge to determine if they are the same birds; AGFD has tried to catch and band every single bird they encounter. In addition, AGFD tries to tag all the young that are produced each year, so researchers can identify where the birds originated from or where they were first encountered. Dennis thinks that there are a number of owls nesting this year that are unbanded birds. Dennis said that AGFD researchers will try to trap some of these new owls tomorrow morning. Trevor asked if AGFD uses colored bands. Dennis replied that they do use colored bands.

Trevor asked about funding for pygmy-owl surveys. Dennis explained that most of the money AGFD has gotten for the last year or so has been through specific contracts, through organizations such as Arizona Department of Transportation (ADOT) and the Arizona National Guard. Trevor asked if the contracts are project related. Dennis said yes and no. In regards to the National Guard, the Guard just wants to know if they can continue with training; they need to know if flights and operations are impacting the CFPO and whether there are other endangered species concerns. Unfortunately, AGFD doesn't have funding to survey historical sites and other areas where there is a good chance of finding birds. Dennis said the Department gets a little Section 6 money to do surveys. Dennis also noted that the owl may be de-listed, thus there is less enthusiasm to invest in survey work.

Rich asked about how likely it is that the pygmy-owl will be de-listed. Dennis replied that Scott Richardson (USFWS) could provide a better answer, but Dennis' impression is that the CFPO will probably be de-listed because there is a lot of political pressure to do so. Dennis wouldn't speculate on how soon the de-listing might happen, but he said that if or when it does happen, there will probably be lawsuits filed very quickly, which will draw out the process for some time. Dennis wasn't sure if the de-listing issue had any relevance to the City of Tucson HCP process, but he wondered if this was something the TAC needed to consider. Leslie responded that one of the major reasons to do an HCP is to deal with uncertainty. She said that one approach is to simply treat the species as if it will remain listed and continue to develop an appropriate conservation strategy. Leslie added that, if the status does change in the future, the City will want to consider that in

making a decision about the HCP and whether the owl should be covered. Michael said that he has not received any indication from anyone in the City of Tucson that there should be a change in course over the fact that the CFPO may be de-listed. Michael added that the City plans to continue with the HCP process as planned and, if the owl is de-listed, the City could re-evaluate how this species fits into the overall HCP process. Leslie stressed that the only discussion of the pygmy-owl listing controversy to date has concerned the fact that the City can only do an HCP if there is an impact to an endangered animal. Although the Pima Pineapple Cactus is listed as endangered, there would not be a listed animal proposed for coverage under the Tucson HCP if the pygmy-owl is de-listed. Rich brought up the fact that a CFPO de-listing would not affect the Marana HCP because they are also concerned with the lesser long-nosed bat, which is also an endangered animal species. Leslie noted that the City's covered activities are not expected to impact the lesser long-nosed bat, so that species will not help with this issue, but City staff are considering options to ensuring that at least one listed animal species can be included to preserve the HCP as an option for Tucson.

b. *Report from Species Subcommittees*

Leslie noted that the bulk of today's meeting is to continue to hear reports from the stressors and threats subcommittees. Leslie said that all of them have met except the cacti group. Mima has been very helpful in trying to get this meeting set up, but the people needed for the meeting have been out in the field and it has not been possible to get it scheduled before now. As a result, the species up for discussion today are a bit different from what is noted on the agenda. The two cacti would not be discussed today; but hopefully, the subcommittee meeting could take place soon and they can be included on the June 7 agenda. In addition, Marit had a conflict and could not make today's meeting, so the burrowing owl discussion has been moved to Friday and the snakes will be covered today instead. Leslie said these changes are reflected in Friday's agenda (May 27) that Michael had handed out at the beginning of the meeting.

Leslie also noted that Scott Richardson (USFWS) thought that the TAC had done a great job creating a comprehensive list of threats and stressors, and Leslie wanted to pass along his compliments the group. Leslie had also spoken with City Council Member Carol West, and Carol was pleasantly surprised to find out that the advisory committees were meeting 2 to 3 times a month in order to get the draft HCP done on time. Carol is very appreciative of the TAC's and SAC's dedication and is supportive of the HCP process.

Leslie handed out copies of the CFPO, ground snake and Tucson shovel-nosed snake subcommittee meeting summaries, and threats and stressor matrices for CFPO and Tucson shovel-nosed snake. She apologized for not having the ground snake matrix, but would get it to the group on Friday. Leslie reminded TAC that these are all drafts because the subcommittee groups have not had time to comment on the notes/matrices.

• *Pygmy-owl*

Dennis said that Linwood and Trevor attended the subcommittee meeting, as well as Sean Lowry (AGFD), who has worked with Dennis directly in the field, Michael Ingraldi (leader of research in the south and oversees all CFPO project), Scott Richardson (USFWS) Marit Alanen (USFWS), and Leslie and Ken Kingsley.

Dennis stressed that, as a whole, the group recognized that the City of Tucson has serious limitations regarding what it can do for this species. The City does not have a huge amount of land that is connected to areas with known owls. Another factor is that, from what researchers have seen, the actual quality of habitat on the City's parcels isn't ideal for CFPO. Dennis stated that the City planning area is important for providing connectivity and dispersal corridors, rather than as an area that currently supports owls or that could provide future opportunities for significant breeding habitat. Dennis said that in general, the habitat in the planning area has been severely impacted in the past and no longer supports significant amounts of the Sonoran desertscrub and cottonwood/willow riparian strips that the owl prefers. These impacts have also been severe in Northwest Tucson due to considerable urban growth over the last ten years. The Northwest used to support significant part of the population in southern Arizona, but the population of owls there has diminished significantly in recent years. Dennis noted that AGFD has been monitoring pygmy-owls in northwest Tucson for the last three years, and that there were only three known owls (all male) at the beginning of the year. Since then, AGFD has confirmed the death of one owl and cannot find a second one. It may be possible that there is now only one male owl in this area.

Dennis said the loss of owls in northwest Tucson could have been caused by a number of factors, but a likely contributor is fragmentation of habitat. The home range of this species in urban areas is currently considered to be about 35 acres. Mima asked if researchers are still certain moderate levels of urban development is still consistent with preserving suitable pygmy-owl habitat. Dennis believes that development is a concern, both in terms of larger projects and individual (3 to 5 acre) parcels, but the most important factor is the cumulative effect of individual actions on parcels causing individual CFPOs to become more isolated and surrounded by development. Dennis said that even if the owls have a sufficient area to support their everyday life activities, such as getting food and having cover from predators, the opportunity for females to get into these areas and breed successfully seems to be getting slimmer because of the continual creation of effective barriers, whether it is in the form of high-density development or roadways. Dennis added that development and roads could be creating enough disturbance to influence the direction that owls move as well. Mima asked if AGFD has found that the previous notion of CFPO being compatible with certain levels of development is incorrect. Dennis said that this could be true, but getting at that type of information is very difficult. AGFD looked at disturbance levels in and around the territories of 4 to 6 individual owls. Dennis said that he doesn't have the specific data, but Michael Ingraldi could give more information. Dennis added that the research sample size is so small that it is hard to give statistical validation. Dennis also noted that he has been encouraged to do more work in Mexico, where it is possible to get a larger sample size, to get better information on impacts of disturbance.

Rich asked if females are more intolerant of disturbance. Rich wanted to know if, for example, a female would return to a male the following year if there had been some disturbance around the nest site. Dennis replied that, from the approximately 50 nests sites that they have monitored, AGFD has found that once a male and female owl pair up, they are extremely successful in hatching young. Dennis says he has only found one clutch that did not hatch, and it was in Altar Valley in an area with no human disturbances. Rich asked if females tend to stay in the same territory during the winter. Dennis replied that the females tend to stay in loose contact with their male partner in non-breeding seasons, usually within hearing distance of each other. Dennis noted that

when females lose the male mate, they don't stay in their original territory, but move to a new one.

Leslie asked Dennis about relative sensitivity of a pygmy-owl to disturbances when it is in an active/breeding territory versus when it is dispersing. She wanted to know how fragmentation of habitat affects the CFPO in its breeding habitat versus dispersal habitat. Leslie explained that she is trying to get a sense of what it would look like if TAC says they want to protect connectivity in Avra Valley. Dennis mesquite thinning came up as a potential management strategy for areas where natural drainages had been changed due to agricultural manipulations causing some areas to collect more water and produce a really thick growth of small mesquite and acacia trees. It was suggested that these areas might be more suitable for CFPO to use for wintering habitat and dispersal habitat if we didn't have the "hedgerow effect," rather had a little more openness. The idea was put forth that some of this could be thinned out to let some of the trees get larger and create habitat similar to where owls occur now. The opposite of that is to promote growth in some areas where not enough trees, which can be done easily enough if the TAC can decide where it would be productive to revegetate. Dennis noted that there are two dispersal routes that have had recent activity and that could benefit from adding trees: along the western edge of Avra Valley and the northern part of the Altar Valley near Ajo Road.

Leslie asked what suitable dispersal habitat would look like on a larger scale. She noted that dispersal habitat that has been identified in the planning area is centered on the washes. She wanted to know how to create a system of corridors that will be functional at the landscape level. Leslie asked what indicators could be used to evaluate if the adequacy of protected or enhanced corridors. Dennis said one factor is having adequate cover. Trees need to give enough cover for the owl to hide from predators, as well as to hide to catch prey. Dennis said that mesquite, ironwood, and paloverde trees seem to provide that cover. Dennis noted that AGFD is currently collecting data on tree density and other suitability factors in dispersal habitat. AGFD is looking at cover and distance between trees or density of trees to see whether they can create a formula for planting or thinning. He also pointed out that ADOT wants to know how far a CFPO will fly so that they know how wide they can make their roads. Dennis said for the last 2 ½ years, the monitoring team has been following birds trying to figure out how far they fly from perch to perch and some of that data will be available at the end of this year. Dennis said that some birds move between trees as little as a couple meters apart; some engage in rare, longer flights around 80-100+ meters. Dennis noted that the typical flight is 20-40 meters between perches. Dennis said the pygmy-owl dispersers that move the greatest distances are females, and they seem to move until something "clicks" and then they stop. If they don't find the resources to survive in a particular area, they'll keep on moving.

Dennis explained that prey base is important in winter because reptile and insect populations decrease, making the owls rely on other birds and rodent populations for food. Dennis suggested that any habitat elements that can be enhanced to encourage survival of those prey species, will help the CFPO survive. Trevor said that snakes are likely not eating exotic invertebrates and he wanted to know if Dennis sees a problem for the CFPO if there is a lack of native prey species in abandoned agricultural fields. Trevor noted that Phil Rosen has come up with a proposal to look at vegetation type, burrow density, and soil types on City of Tucson property in Avra Valley to see if there is a prey base for both snakes and the owls.

Dennis explained that creating ideal habitat in the planning area is not a critical consideration; rather the TAC should focus preserving or creating opportunities for owls to move through area. Trevor asked if pygmy-owls forage as they move. Dennis replied that they eat every day, sometimes several times. Dennis said that, with respect to fire threat, invasive species in the Sonoran Desert are sometimes susceptible to burning. Dennis said that the concern is not that invasive species are burned, but that native species that may be used by the CFPO are being burned, and obviously saguaros are really important. Dennis noted that nesting habitat is not the main concern on City lands, rather the primary concern is to make sure an owl can get from one perch to another. Dennis suggested that it might be wise to give some attention to controlling invasive species in those corridors that would promote fires that could remove the larger trees in areas of cover. Dennis also said that disturbance to habitat also includes noise, frequency of use by people, ATV use, construction activities, road maintenance, and the cumulative effect of all things may be a significant factor especially for dispersers. Dispersers seem to be more skittish, sensitive to noises and machinery than established birds holding on to territories or who are paired. Dennis noted that AGFD's observation numbers are small, but his experience shows that dispersing birds are harder to approach. Dennis said AGFD has tracked some birds that changed their direction because construction was going, as well as dispersers who have on occasion approached an interstate highway and within 1.5 miles of it changes their direction. Dennis said that it is possible that the noise and movement along the interstates have influenced the bird's movement, but he does not know for sure. These kinds of things may have an influence if a bird is willing to move through an enhanced area, but Dennis said he does not know how the City can control those disturbances.

Dennis pointed out that his experience with unpaired females is that they will stop moving when temperatures are cold, usually around the first freeze in November. When females decide where to stay for winter they typically stay there for a few months. Dennis says they have tracked those females to a point, then they stop moving. Dennis said that once they lost contact with a female because the radio transmitter expired, but they came back at the end of winter and found her in the same place, thus deduced she had spent the winter there. Dennis said that the unpaired females will stop moving during the coldest time of year, and the spot they chose may be dependent on where they can get prey and cover from predators and the elements. Ken Kertell asked when the fledglings move out of the nest. Dennis said that fledglings leave the nest area between 40-50 days post-fledge, while some stay up to 65 days. Ken Kertell asked about the percentage of owls that leave the nest, and how many end up becoming the lone females that move great distances, such as the female in Avra Valley. Dennis explained that there is gender difference. Females tend to move longer distances, until they find what we assume is a mate. Males move as little as 1.5 miles, and within two weeks have a cavity and are defending a territory and soliciting females. Females will move short distances if they encounter a male. The work that Glen Proudfoot has done in Texas says birds are pairing in the fall, a short time after they leave the nest. It is only those females who don't find mates that continue to move those long distances.

Leslie said that she has heard three overall goals from the TAC's discussion: (1) preserving the quality of corridor habitat at a smaller scale by ensuring that essential elements are present, including suitable density of vegetation, prey base, minimizing disturbance, and reducing the impact of invasive species; (2) creating a dispersal habitat configuration that preserves connectivity at a larger scale; and (3) reducing barriers to movement. Rich was concerned that we don't know enough to do this. Rich felt it was

important that the TAC look at land ownership; they currently don't know what is occurring adjacent to the City properties to see whether any viable connections are possible. Rich noted that the value of these properties right now is that they won't be developed and, with the current and planned recharge facilities, there will be water to grow trees. Leslie added that some of the land will be developed for water supply project, but those the types of disturbances won't be the same as urban development. Leslie explained that, ultimately, the TAC needs to identify a framework for evaluating the effectiveness of the conservation strategy.

Trevor thought that the most productive approach would be to conduct a permeability analysis, looking at land ownership in Avra Valley and other constraints that affect where birds will be able to move in the future. Trevor said TAC needs more information from Tucson Water to see which lands they want to put retention basins on, and which ones could be revegetated. There will be some lands adjacent to the Tucson Water properties that will be important as acquisition lands to preserve connectivity and to protect habitat on the Tucson Water lands. Trevor noted that this can help the snake as well.

Leslie noted that, at the smaller scale, the TAC can look at protecting habitat quality through guidelines; identifying actions and considerations to implement to protect dispersal habitat. The large scale issues could be addressed by what Trevor was proposing, which is to draw lines on map and identify a system that the TAC thinks adequately addresses connectivity issues. Trevor agreed and noted that the TAC needs to consider Pima County acquisition and protection priorities; the County is looking at protecting an east-west corridor across the CAP canal, including the Brawley Wash and adjacent to existing Tumamoc globeberry preserves. He feels that this is an area that the TAC should concentrate on with respect to restoration or acquisition of private property that already include constituent habitat elements. Trevor wanted to start by looking at maps of the area. Rich was concerned that the TAC couldn't build a corridor system, because there is no clear notion of what is need to successfully preserve connectivity. Rich said that the best approach is to leave as many options open, see what Tucson Water wants to do on their properties, then see what opportunities are left for linkages.

Trevor noted that Tucson Water is actively planting and thinning on their Avra Valley properties already. The land along Ajo Road would be an important area to look at planting to increase the likelihood of owls crossing Ajo Road. According to Dennis, the record-setting female that AGFD tracked last summer crossed Ajo while moving north, but no ones knows exactly where she crossed. Ken Kertell asked if it is possible for females to get to NW Tucson to historic nesting sites in the big picture. Dennis feels that it is possible based on recent information received from monitoring long-distance dispersers. Both females have squeezed through the Green Valley area, through a narrow strip along the mines on west side of I-19. The females have gone through stuff no one expected them to get through. Dennis said the owls perched on ocotillo and scrubby acacias. The owls managed to get through substandard stuff with lot of potential hazards, stopping in drainage pockets over night. Dennis pointed out that, in his mind, the fact that a few individuals could get through means that there is some hope and that it would not take a lot to provide a corridor into historical areas in Northwest Tucson. Dennis said that it is no question that the interstate highway (I-10) is a major issue; people have been trying to figure out for a long time what can be done to gets animals across. Dennis noted that, although the augmentation issue hasn't been a major topic for the TAC, the creation of corridors is an area where Tucson could significantly contribute to the overall effort.

Ann asked Leslie what the TAC is trying to accomplish on the Avra Valley lands. Ann said she knows that the HCP process is driven by species, but it seems to her to just be a tricky way to get at habitat protection. Ann said that Avra Valley lands have various soil types and vegetation and therefore any type of habitat the TAC would want to create is actually already there. Ann added that the land in Avra Valley is already trying to go in some direction naturally, and by working with the tendency of landscape to create a variety of habitat types, the TAC can see that the needs of all species are met. Ann suggested that irrigating trees for the CFPO would cost a lot of money without getting much of a response. Rather, Ann said, building an ecoduct across I-10, rather than fighting against the natural tendency of land, would be a more effective approach. Ann also noted that recharge areas could be good opportunities to create habitat. Ann felt that it is important to keep the larger picture in mind of what can be realistically accomplished. Ann stressed that the group needs to use creativity in creating a conservation program. For example, instead of planting trees every 50 meters for the CFPO, try sticking up some artificial perches that the owls can use. Ann felt that the TAC was struggling to find a way to create the 'right' habitat, but none of the descriptions of a species' habitat needs are cut-and-dry. Ann noted that these species are unpredictable and responsive to the environment; nature wants to be alive, and if you give it the seed base and water, and minimize disturbances, it is going to create what is "supposed to be." This approach could be done rather than the City spending a lot of money on intensive restoration. Ann also said that she is very excited about the potential of lands in Avra Valley because Pima County is buying lands adjacent to City holdings. Ann said that the TAC's approach doesn't need to be a set of constraints and limitations, rather possibilities and creative solutions.

Leslie suggested this is something Mima could help with. Leslie noted that there is a fine line in this process; while we need to look at things from a holistic perspective on a landscape scale, the ESA requires that we demonstrate certain things, and this has to be done on a species-by-species basis. Leslie noted that the City to identify the impact of proposed covered activities, and then avoid, minimize, and mitigate anticipated take to the maximum extent practicable. Leslie hoped that the process can lead to an HCP that is adequate for USFWS, but without overlooking the perspective that Ann raised. Rich felt that, when USFWS looks at the HCP, they are going to be looking at the process, and if the TAC is practical about their approach, as Ann suggested, then it seems to him that it would satisfy the USFWS. Mima agreed that there is a fine line, and noted that, in reality, when an HCP is submitted to USFWS, they have to evaluate each species individually. Mima explained that the HCP cannot be so broad so USFWS cannot figure out what is going to happen with a particular species, but it shouldn't be so specific that it identifies every detail, such as in which mesquite bosques the City will be thinning trees. Mima added that the HCP can't just say "preserve open space" and assume that good things will happen naturally. Mima said that, what Trevor is taking about, is looking at current constraints around Avra Valley lands over the life of the permit, and then identifying the factors that we anticipate will make the corridor work or not, specifically what are the kinds of things we can and are able to do to contribute to conservation of the covered species. Mima said that this is where the TAC should focus their attention and the details will come later.

To wrap up the conversation on CFPO, Leslie reviewed the list of goals: (1) preserving the quality of corridor habitat at a smaller scale by ensuring that essential elements are present, including suitable density of vegetation, prey base, minimizing disturbance, and

reducing the impact of invasive species; (2) creating a dispersal habitat configuration that preserves connectivity at a larger scale; and (3) reducing barriers to movement. Leslie asked the group if they felt comfortable with these as these goals for the pygmy-owl. There was no disagreement expressed by the TAC.

Trevor, responding to an earlier comment by Ann, noted that the City would do more for the CFPO by creating an ecoduct over I-10 than from anything that can be done in Avra Valley. Leslie explained that the City's conservation program has to address the same types of impacts that are anticipated to occur from the covered activities. The USFWS will not allow impacts to one area or to a particular type of resource to be mitigated in a different area or by preserving a different resource.

Ralph asked to speak a little about Tucson Water's long-range plan. Ralph said that the TAC has not seen the presentation on Tucson Water's long-range plan and he thinks TAC would benefit from seeing this presentation. Ralph said there is a lot of uncertainty associated with what will result from the plan because the City has a number of options for addressing water supply needs for the community. The City will present these options to the community and see which approach people want the City to take. For example, if the community wants high quality water, there could be a larger impact in Avra Valley over the long term. Leslie agreed that this presentation would be helpful for the TAC and, in particular, would give everyone a better sense of what the potential future activities and anticipated impact will constitute. Leslie added that the TAC supported the idea of starting with the Southlands, and then moving on to considering Avra Valley and the Santa Cruz River. It would be useful to have the presentation just prior to focusing on Avra Valley lands.

Mima said that most of this discussion today has focused on Avra Valley and asked whether the Southlands was still going to be considered with respect to the pygmy-owl. Leslie replied that issues for the Southlands are the same for Avra Valley in terms of goals and similar habitats; Southlands is a more simple system because the habitat is centered around protecting wash corridors and buffers. Dennis said that is true, however there are a few isolated saguaros in the Southlands and those few may have some importance for owls in the future. Dennis noted that, in Altar Valley, there are nesting birds in areas with only one or two saguaros. Dennis wants to make sure that the Southlands saguaros are part of the HCP conservation effort. Leslie asked Dennis if he was looking at the Southlands as potential breeding habitat. She noted that, based on conversations with Scott Richardson and others, the only habitat identified in the Southlands is the washes, both as overwintering areas and dispersal habitat that connects to areas outside of the planning area. She also pointed out that the Southlands got thrown in originally as a result of the potential augmentation program. Leslie said that we don't any breeding habitat, per se, identified. Dennis said that is a fair description, however he wants to make point that TAC needs to be careful not to dismiss the fact there are only six saguaros out there. Dennis added that it is important to make some effort to preserve these patches of potential breeding habitat in the Southlands although they don't seem important now.

Trevor asked Dennis if AGFD is finding owls in areas that have been converted to bufflegrass, with only a couple of trees and few cacti. Dennis replied that he doesn't know. Dennis said that Aaron Flesh (who has done all the work in Mexico) and Glen Proudfoot were not able to make the CFPO subcommittee meeting, but they might have some additional information relevant to this discussion. Mima was concerned that the

level of uncertainty is high with respect to this species. She cautioned the TAC against writing off areas based on just what is known today. Leslie said the potential of getting owls in the Southlands depends on augmentation, and that it is in respect to the augmentation program that this conversation is important. Mima says she does not necessarily agree, and doesn't feel comfortable saying that there will be breeding owls in the Southlands. Leslie suggested that these concerns be incorporated into the conservation program with the additional of a fourth objective to preserve future augmentation opportunities by considering the impact of development within the Southlands potential breeding opportunities and ability of owls to move through the area.

- **Ground Snake and Tucson shovel-nosed Snake**

Leslie passed out subcommittee meeting summaries for the ground snake and Tucson shovel-nose snake. She said that Phil and Cecil have not yet commented on the summary and matrix, although they have been given copies of them.

Trevor explained that both snakes have been found together, although this is not common, and generally are found in different soil types. Not much is known about either snake, however, including their life histories and diets. The subcommittee group talked a lot about restoration in Avra Valley. The Tucson shovel-nose snake hasn't been seen in Pima County since the late 1970s. The group talked about restoring desert vegetation on old agricultural fields, which would provide habitat for burrowing owls, and maybe pygmy-owls, as well. Trevor said that the biggest threats are loss of habitat and roads. Trevor suggested that Tucson Water could mitigate by buying habitat if they have to destroy habitat. Some of the old irrigation ditches could act as traps for snakes or barriers to movement. The subcommittee group also discussed prey and burrow availability. Trevor noted that some of the Avra Valley agricultural lands are hosting non-native invertebrates, such as cockroaches, and the subcommittee was not sure if snakes eat them. Trevor said that the snakes eat native invertebrates such as beetles, larvae, and scorpions. It is also important to know if there are mammals present that can make burrows for the snakes. The subcommittee decided that the only way to get handle on the potential of snakes to be present is to send Phil out to look at soils, vegetation, and assemblages of native/non-native rodents and invertebrates on the Avra Valley properties. Trevor said the suitable habit map for Tucson shovel-nose snake was refined to identify a core area for this species. This core area, which lies between Manville Road and Avra Valley road, has some good habitat left and may be a good location for monitoring and restoration. Trevor added that some of the old farm fields are slowly returning to more a natural state. The subcommittee group talked briefly about protecting snakes from road kill, using an environmentally sensitive design to block the snakes from getting onto a road. As Avra Valley areas develop, traffic will increase. Trevor reiterated that it would be important to restore agricultural lands back to full-functioning desert communities. The group didn't feel that there was enough information currently to do this, but some of this information could be provided by Phil's proposed survey. Trevor said he feels comfortable with Phil going out and, based on what he knows, identifying potential road impacts and possible restoration areas.

Trevor noted that CASVARP and SASVARP are a little south of what is considered potential habitat for the snakes. Along those lines, one suggestion is to keep development to the south, but that may conflict with ideas for the CFPO. Dennis asked about what specific conflicts were concerns. Trevor said that the Tucson shovel-nose snake likes valley bottoms and creosote flats, with a less complex vegetation structure.

Ken Kingsley added that some conflicts could be the mesquite thickets from agriculture run off, that while these trees are good for CFPO, it would be better for Tucson shovel-nose snake if we got rid of the trees and re-established surface flow.

Trevor pointed out that the ground snake has been found in urban areas in Phoenix. Trevor said that perhaps setting aside natural areas within development might be good enough for this species. The subcommittee felt that the ground snakes could do fine near the Tucson Water recharge basins, which is not the case for the Tucson shovel-nosed snake. Trevor said that he doesn't know the Tucson shovel-nose snake status, but if the snake does get listed the impacts may be so great on the Tucson Water land that the City would never be able to get coverage. Trevor noted that this could be a moot point because it could take years for the Tucson shovel-nose snake to become listed. Dennis asked if there are reservoirs of the snakes in other areas. Trevor replied that there are snakes elsewhere, but reintroduction/relocation of rattlesnakes hasn't been too successful, so moving the snakes doesn't seem to be a productive avenue. In addition, no one knows how much area the Tucson shovel-nose snake needs, so no one knows how many could be reintroduced into Pima County. Trevor added that Phil would be excited to experiment with re-introducing snakes, however. Trevor noted that Phil suggested during the Marana HCP process that there were mitigation opportunities around Florence, Casa Grande, and Mobile, where there are established populations of the snake. Trevor said that it might be possible just to mitigate outside Pima County, but he would like to see snakes in Avra Valley, whether it is in existing habitat out there or restored habitat. Leslie added that Tucson shovel-nosed snake the populations around Casa Grande and Florence were likely to be in the same genetic stock as the snakes that historically occurred, or possibly currently exist, in Pima County. Phil felt that populations around Mobile are part of the intergrade zone between the Tucson subspecies and other subspecies, and represents an area where there would likely be less genetic similarity with snakes in Pima County.

Trevor explained that the last activity center for snakes is West Avra Valley road near Sander's Road where natural vegetation still existing; this is the area where lots of snakes were collected during the 1970s. Trevor noted that the three most important habitat factors are soils, burrow availability and native invertebrate prey base. Trevor said the snakes do need burrows, as they go underground to forage.

Trevor said the conclusion is that the ground snake should not have trouble surviving on Tucson Water lands if they continue to replant native vegetation. It is going to be much more difficult for the Tucson shovel-nose snake. Trevor feels that there are still snakes in Pima County, but people are only looking along the roads and are not getting into larger blocks of habitat where they are more likely to be found. Leslie said that the goals for the snakes seemed to be very similar to those for the CFPO: to preserve suitable habitat with sufficient area, with attention paid to also to large-scale connectivity. Trevor added that Phil felt that the Tucson shovel-nosed snake needed 1 square mile minimum to persist, but if these islands of habitat are completely surrounded by development it is not likely to support the persistence of the species over the long-term.

Leslie said that there seemed to be three main goals: (1) protecting suitable habitat and/or restoring degraded habitat, (2) minimizing mortality, and (3) reducing barriers to movement. Trevor added that even dirt roads can discourage snakes from crossing because changes in soil texture can affect snakes' movements. Trevor said that Phil wants to see if the soils in former agricultural areas have reinvigorated themselves since

they were retired. Leslie asked if the group was okay with these three goals/objectives and suggested posing them to Phil to see what he thinks and to request that any survey work consider these goals and try to provide answers on how they can be achieved. Trevor reiterated that getting Phil out there is the best way for him to get his head around these topics.

Mima wants to ask Cecil and Phil to develop a meaningful conservation strategy for this species. A meaningful proposal has to be based on what the species needs for conservation, and Mima is concerned that there is so little known about the species that it might not be possible cover the Tucson shovel-nosed snake in the HCP. Leslie noted there are also other tools for conservation including voluntary actions and candidate conservation agreements. She felt that the Tucson shovel-nose snake is the hardest species to deal with in the HCP, in part, because so little is known about it. It is also complicated because there is a petition to list the species and this could be very significant for the City, County and Town of Marana when considering the future projects. Trevor doesn't think the County is going to cover the snakes in their HCP.

Ralph asked if the group needs to know any soil information from the SASVARP basin because the snake conservation areas were largely plotted by soil type. Leslie suggested that would be valuable in the future.

Leslie passed out draft goals and objectives for the pale Townsend's big-eared bat. Leslie noted that this format is based on the typical approach taken in other HCPs, but she recognizes there other considerations when looking at conservation. Leslie told the group she would like to get feedback on the structure of the information at the Friday meeting (May 27).

Leslie passed out information regarding the "dark sky" and native plant preservation ordinances. The sheet on the "dark sky" ordinance shows lighting restriction zones (E3 is the most restrictive and E1a is the most restrictive; it is labeled backwards on the handout). On the back of the sheet are a list of the basic ordinance components including restrictions on total light output, timing restrictions, and types of development that must comply. She noted that the Southlands falls into two different zones, with the southern portion being more restrictive in lighting than the northern portion. The sheet on native plant preservation includes a list of the species that are regulated, percent preservation requirements, and mitigation ratios for destroyed or transplanted individuals. Leslie said she is trying to provide supporting information to make the development of the HCP as easy as possible, but she also doesn't the TAC to get too caught up in the details of how this will be implemented since that is the responsibility of the SAC. Leslie reminded the group that burrowing owls and the yellow-billed cuckoo would be covered at the May 27 meeting.

4) Call to the public

No members of the public were present.

5) Next steps/Future meetings

TAC will meet this Friday (May 27) from 8-11 am at AGFD.