City of Tucson Habitat Conservation Plan
Stakeholder Advisory Committee
May 4, 2005 3:00 – 5:00pm
Arizona Game and Fish Department Conference Room
555 N. Greasewood Road

MEETING SUMMARY

Attendees: Sherry Barrett, Greg Hess, Larry Marshall, Lori Lustig, Catherine Balzano, Nancy Zierenberg, Dennis Rule, David Goldstein, Emily Brott, Susan Shobe (alternate for the Coalition for Sonoran Desert Protection), Ken Kinglsey (SWCA), Leslie Liberti (SWCA), Jessica Lee (SWCA), Michael Wyneken (City of Tucson, Planning), Ralph Marra & Tim Thomure (Tucson Water Department)

1. Introductions

Ralph Marra and Tim Thomure from the Tucson Water Department were introduced to SAC.

2. Update on Recent TAC Meetings/Upcoming Meetings

Leslie gave an overview of future meetings. Leslie briefed SAC on TAC future meetings and stressed that the June 22 joint meeting will be a good time for the SAC and TAC members to meet each other. Leslie passed around a handout that detailed upcoming meetings.

a. Scheduled SAC Meetings:

- **May 26**, 3-5pm at AGFD. Tentative Topics: Detailed information on Avra Valley and Santa Cruz River planning areas.

- **June 22**, 1-4pm at AGFD. Joint meeting with TAC. Tentative Topics: (1) Introductions, (2) biological stressors and threats summary, (3) Initial conservation strategy thoughts, (4) Presentation on Pima County's species-specific mitigation strategies.

b. Scheduled TAC Meetings

Species subcommittee meetings to discuss stressors and threats:
- Pygmy-owl – May 9, 10am, at USFWS. Subcommittee: Scott Richardson, Dennis Abbate, Mike Ingraldi, Aaron Flesch
- Burrowing owl – May 9, 1pm, at AGFD. Subcommittee: Mike Ingraldi and others from Game and Fish, Mark Ogonowski, Wendy Burroughs
- Snakes – May 16, 1pm, at SWCA offices (343 W Franklin; just east of Granada). Subcommittee: Trevor Hare, Cecil Schwalbe, Phil Rosen
- Cacti – Tentatively on May 5, sometime between 10am and 1pm. The meeting will take place, if possible, between 2 scheduled Pima County HCP meetings, at USFWS. Subcommittee: Mima Falk, Marc Baker, and possibly others
- Cuckoo – Tentatively on May 11, 10am, at AGFD. An alternate date is May 12. Subcommittee: Troy Corman, Brian Wooldridge, and possibly others

Regular TAC meetings:

- **May 24**, 1-4pm, at AGFD
  Tentative topics: stressors/threats for pygmy-owl, burrowing owl, and cacti
- **May 27**, 8-11am, at AGFD
  Tentative topics: stressors/threats for snakes and cuckoo
- **June 7**, 1-4pm, at USFWS
  Tentative topics: species goals/objectives and initial conservation strategies for Southlands
- **June 22**, 1-4pm, at AGFD
  Tentative topics: joint meeting with SAC
- **July 12**, 1-4pm, at AGFD **AND/OR July 26**, 1-4pm, at AGFD
  Tentative topics: Southlands conservation strategies
- **August 9**, 1-4pm, at USFWS **AND/OR August 23**, 1-4pm, at AGFD
  Tentative topics: Avra Valley conservation strategies, Santa Cruz River goals/objectives

c. Status of TAC Work:

Habitat models: completed

Impact assessment: covered activities not fully defined; still in progress

Biological goals and objectives: subcommittees established to identify stressors and threats for each species; one meeting to date; information will provide basis for developing goals and objectives for conservation program

Conservation strategies: estimated to begin in June for the Southlands, in August for Avra Valley, and in September for the Santa Cruz River corridor

3. Old Business

a. Meeting Minutes

Discussion and approval of the March 31, 2005 meeting minutes was put off to the next meeting.

b. Action Items from Previous Meeting

No items were held over from previous meetings.

c. Topics Held Over from Previous Meeting

No topics were held over from previous meeting.

4. New Business

a. Southlands Information

This item was delayed until after the Tucson Water presentation (see Agenda item 5).

b. Tucson Water Department 50-year plan

Tim Thomure and Ralph Marra from Tucson Water Department gave a 90-minute presentation titled, “Preparing for Tucson’s Future Water Plan: 2000-2050.” The first hour of the presentation was based on a PowerPoint presentation (no copies of the presentation were distributed) and the remaining half-hour was a question and answer time period. Tim said the draft plan was given to the City of Tucson Mayor and Council last November. The draft plan is intended to initiate dialogue with the community about future water resources challenges. This plan provides a basis for this dialogue.

The first topic Tim talked about was a graph depicting the population projection of the City of Tucson and the expected water demands. The graph showed a large gap between the amount of water currently available and the water demand that will be expected. Tim said that the community will need to start making decisions in 2006 about the direction they want Tucson Water to take to address future water supply and quality issues. Tim noted that the primary function of Tucson Water is to meet the water needs of the community. Tim explained that, historically, Tucson has relied on groundwater but now that dependence has raised concerns. According to Tim, the City now has the opportunity to shift demand to renewable water, including Colorado River water distributed through the Central Arizona Project (CAP) canal. The shift to maximizing renewable water supplies will require the community to make decisions about their water preferences relating to water quality. Tim said it is up to Tucson Water to explain how the quality of water can change in the future. They need to see if the community is willing to accept the costs associated with those water quality changes. Tucson Water must manage costs and water rate increases, while meeting all federal and state requirements. Tim explained that there must be a limit to groundwater pumping due to environmental considerations. The City and other groundwater users have been mining the Tucson Basin aquifer for many decades.

Tim continued with the next slide that depicted a chart showing water use by sector from 1940-2000. The three sectors are municipal, industrial and agricultural. The main features of the chart showed that water use peaked in the 1970s, driven largely by agricultural water usage (approximately 300,000 acre-feet. One acre-foot is roughly equivalent to filling a football field – minus the end zones – one foot deep with water.) After the 1970s, the amount of water the agricultural sector used declined as the City of Tucson purchased those agricultural lands in Avra Valley in order to gain water rights. Municipal water use has steadily increased since 1940 and in the mid-1980s, it became greater than agricultural usage. It is projected that municipal use will continue to increase in the future. Tim said that industrial use largely consists of the mining industry’s ore processing. Mining used little water until the industry boomed in the 1960s. It subsequently peaked in the mid-1970s and has since decreased to a relatively steady level. Until the 1990s, most of the total water use was ground water. In the early1990s, the City began directly using Colorado River water from the CAP, and then stopped because the difference in water chemistry caused problems in some of the old piping.

Currently, CAP water is recharged in large basins in Avra Valley where it is blended with groundwater and pumped out for supply.

Lori made a point that even though municipal water use now exceeds agricultural use, the amount is nothing close to how much agriculture used historically. Currently, municipal water use within the Tucson AMA is at about 160,000 acre-feet. Larry asked what the rate of natural recharge is currently. Tim answered that it is hard to quantify, but the Arizona Department of Water Resources stated in their third management plan that natural recharge is approximately 85,000 acre-feet per year. If that is the case, then groundwater users within the Tucson Active Management Area (AMA) are using almost three times as much water per year than is naturally recharged into the aquifer. Dennis pointed out that agricultural pumping is localized, thus its impact to the aquifer doesn't affect the city area. While agricultural water use is an issue in the Tucson AMA overall, this pumping doesn't directly impact municipal water supply because we don't have agricultural fields in the middle of the city. Larry asked Tim to quantify one acre-foot. Tim said it would provide water for 3 Tucson families for one year.

Tim continued, with his next slide showing the change in the aquifer water table from 1940 to 2000; indicated by color changes in the aquifer map as the water table decreased, red being the most severe. There are large declines currently in the water table in Avra Valley, reaching greater than 200 feet. In the 1960s, the water table had declined by 100 feet in Avra Valley. By 1975, it had dropped to more than 200 feet. In 1985, the aquifer began to be stressed in the Tucson Basin due to municipal use. Now, large areas of the Tucson Basin show a 200 feet decline in the water table. Not only does this decline cause higher pumping costs, but also it is not sustainable. This pumping has also resulted in subsidence. In the Tucson Basin, land has subsided in some places between 1 and 4 inches. This has not had a significant impact in urban Tucson to date but if municipal pumping continues at the historical rate, the rate of subsidence can be expected to increase and the consequences could be significant. This shifting in the ground could affect sewer systems through infrastructure damage and possibly reversing the flow in the pipes that rely on gravity. Tim said that while the Tucson community was built on groundwater, now there needs to be a shift to renewable water. The Tucson allocation of Colorado River water is about136,000 acre-feet. Currently the City only uses approximately 1/3 of the total amount of its effluent, while the rest is dumped into the Santa Cruz River and flows away. Tim stressed that the City must eventually operate its well fields to pump groundwater at a hydrologically sustainable rate.

Tim's next slide showed flow charts of how Tucson Water came up with the 50 year planning process. Tim said that the planning process largely relied on computer based tools, allowing the City to look at changes in a time frame of weeks rather than months or years. It is also based on scenario planning, an approach that embraces uncertainty to allow the City the flexibility to adapt to future conditions, needs, and priorities. Because the planning process can accommodate uncertainties, the City won't have to go back to square one if something unanticipated happens. Tucson Water has identified a timetable where key decisions need to be made, rather than making them all at the beginning.

Tim explained that Tucson Water mapped a long range planning area, including not only the City of Tucson but neighboring water utilities. This was done because they all share

the same groundwater resources (they pump from the same regional aquifer), have similar water resource interests, and are all expected to grow. The population of this area is currently 800,000 people and is projected to grow to 1.9 million by 2050. Tucson Water customers will double to about1.2 million during that period. Tim showed a map that geographically projects where these customers will be living, showing densities increasing in urban Tucson, and to the south and southeast of the city. Susan asked how the Tucson Water planning area corresponded to the AMA. Tim responded that it is areally much smaller than the AMA and therefore doesn't service the distant areas of the AMA. Tim said Tucson Water's projected water demand in 2050 is 250,000 acre-feet, currently double what it is today. The demands include both potable and non-potable water.

Ralph gave the rest of the presentation. Ralph noted that Tucsonans use an average of 177 gallons per person a day, and that this number has been holding steady over the last couple of decades. This figure is based already on a moderate amount of conservation by the Tucson Water consumers. Ralph said that Tucson Water didn't want to base water plan projections on the assumption that conservation will increase since that is a lifestyle decision that the community must decide. Instead, Tucson Water conservatively assumed that per capita water consumption levels will hold constant at current levels considering it more prudent to error conservatively. Currently, Tucson Water doesn't have the 250,000 acre-feet of water needed to supply demand in 2050. Ralph stated that this is Tucson Water's supply challenge. Ralph said there are three things they need to do to provide a water supply. First, the City needs to fully utilize existing supplies. The second is that the City needs to acquire additional water supplies. Finally, the City needs to encourage the community to increase the level of conservation.

David asked how much water the City currently has available now. Tim replied that approximately 188,000 acre-feet per year are currently available. Ralph said that when the community talks about fully utilizing the existing water supply they have to consider both drinking water and non-drinking water. Non-potable (reclaimed) water is about 8 percent of the total annual water demand. When Tucson Water planners look at the total demand, they see lots of options of how to mix and match the non-potable and potable into our water system. Tucson has the 136,000 acre-feet of Colorado River water. We also have the TARP remediated contaminated water, although that amount is decreasing because the contaminated portions of water needing to be cleaned up are decreasing. Reclaimed water usage is steady at 8 percent of the total amount produced. In 2000, Tucson's total potable water usage was from groundwater. In 2001, the community started using Colorado River water, leading to a decrease in the amount of groundwater pumping.

Ralph continued with the topic of acquiring additional supplies. Relying increasingly on groundwater in the long-term is not possible because it would cause further mining of the local regional aquifer. Tucson Water could potentially pump from other areas outside the Tucson AMA and transport the water to the city; some entities in Phoenix AMA are looking at this. But this is transferring the problem to another part of the state. The City of Tucson is not counting on this and it is unlikely that this could even be possible. The City could increase the use of surface water, by trying to access additional Colorado River. Native Americans currently have half of Arizona's 1.5 million acre-foot CAP allocation, so there is a possibility that municipalities could lease more Colorado River

from tribes. Maricopa County is interested in this too, and competition over these resources will likely lead to an increase in the price of water. Other potential water supplies include the effluent supply, which is locally produced even in drought conditions since we generate it ourselves all the time. This option is used already in El Paso, Scottsdale and in Orange County, California.

Ralph said that in 2020, there would be approximately 40,000 to 50,000 acre-feet of groundwater per year that could be pumped sustainably. (Comment: I'm not sure what the previous means…something got scrambled--suggest it be deleted) Nancy asked why the City was not using more of its effluent currently. Ralph said that only 8 percent of the effluent is being used due to the high costs of building pipelines to convey the water to customers farther away; thus the system currently has limited water demand. Nancy noted that agriculture could be using effluent water. Ralph explained that farmers don't want to use it because pumping groundwater or using subsidized CAP water is cheaper.

Ralph talked about aggressive demand management. He said that increasing the level of conservation could control demand, which could increase the relative supply of water. But, he said, the City cannot conserve their way through the shortfall. Rather there needs to be a three-pronged approach: fully utilizing supplies currently available, acquiring additional supplies to augment what we have, and implementing a more aggressive conservation program. Ralph said that water waste ordinances, consumer education, and assistance/incentive programs could be expanded if the community wants to invest in it—these are lifestyle decisions. The City is also setting up a conservation task force to interact with the public to see what conservation approaches, such as rainwater harvesting and using gray water, are more attractive to the community. One citizen, for example, gave a suggestion of moving the hot water heater closer to the shower so less water would be wasted waiting for the water to heat up. He added that there might be other technical ways to accomplish this but the sentiment is clear.

Leslie wanted to know, once we see water demand exceed current water supply, how much of the gap can be filled using treated effluent. Can effluent completely fill the gap? Tim said that if the City can act quickly to take steps to fully utilize its effluent, it may be possible to fill the gap using effluent supply. Larry asked if the City anticipates, that at some point, the cost of providing water would increase, which could be an incentive for consumers to use less water. Ralph responded that water may be like gasoline and be fairly inelastic, meaning that small to moderate increases in the price of water will probably not have a proportional effect on demand. Over the short term there might be a dip on water consumption, but over time, research suggests that people will make tradeoffs in their lifestyle by not spending money on other things in order to keep their level of water consumption consistent. However, a large increase in the cost of water might result in more permanent reductions in consumer water use. Dennis added that Tucson Water is mandated to match rates with costs, so they are unable to raise prices too high. Ken asked whether the proposed Pima County regulations regarding gray water in new subdivisions would affect the availability of effluent. Ralph said that as people use more gray water for consumptive outdoor use, it could be more advantageous to them since it might lower their water bills, but it would also decrease total effluent supply which could be reused. He stressed that Tucson Water doesn't have all the answers but it is clear that there are tradeoffs depending on what people elect to

do or not do. Nancy asked if anyone was working on composting toilets. Ralph said that some city parks are doing it, but he doesn't know about potential residential usage.

Ralph continued by saying that the community will have to make decisions soon regarding the use of Tucson's CAP water. The community has had ambivalent feelings about this water but attitudes have become more positive. The questions facing the community are:

1. Do we want to control the amount of dissolved minerals in the groundwater/CAP water blend, or do we want to let them rise to a natural equilibrium? We can currently provide the blend at current levels and up to a 450-milligram total dissolved solids (TDS) level for some time, but the recovery wells are now pulling up more CAP water which is increasing the mineral content of the blended supply. Around 2010 we may reach 450 mg TDS in the blended water. Does the community want to build a desalinization plant to be able to maintain the mineral level in the water at about 450 TDS indefinitely and pay the higher treatment costs, or are they unwilling to pay the cost of enhanced treatment and will settle for water with a higher mineral content ? If the community wants mineral control , Tucson Water could do that.

2. How do we want to use our Colorado River water? Will the community continue to accept the recharge of CAP water and the natural treatment of the water through 300 feet of soil filtration? Tucson Water is doing this now with all of the CAP water currently utilized. It may be cheaper to process additional CAP water through a treatment plant rather than through recharge. One benefit of recharge, however, is that Tucson Water can bank CAP water underground so the community has it available to use in dry years.

3. Do we put effluent discharged to the channel into full use? Currently, 2/3 of the effluent is discharged into the Santa Cruz River where it flows away downstream. Should we make use of this supply for Tucson since it was produced by Tucson residents and businesses?

4. If we wanted to have full use of effluent water, what do we want to do with it? If we don't want to drink it, we could put it in a recharge project away from our wells, but again, this not where we are pumping. If we recharge in one place and pump in another, it will cause groundwater mining and will likely lead to additional subsidence over time. This would only be a temporary solution. Or it could be made into part of the blended water supply? After we treat it to a very high degree, we could then recharge it and eventually recover it through wells as part of the groundwater blend. Recharge of highly treated (potable) effluent could improve the quality of groundwater because, as the Colorado River water increases in mineral content, adding treated effluent with reduced minerals to the recharge blend could reduce the higher mineral content associated with CAP water.

Ralph reiterated that the era of groundwater mining is over. Tucson has had years of groundwater mining which has led to subsidence in some areas. The City can't continue to ignore the situation because the problems will only get worse. Laws won't allow for growth that relies solely on groundwater. Tucson Water's goals for the future are to achieve sustainable groundwater pumping while supporting a shift to renewable sources of water.

Ralph also noted that the era of inexpensive water is over. We will expect increasing costs to obtain/use renewable water supplies. The cost of groundwater is cheap because the only cost is to pump it and build pipelines to convey it to customers. CAP water is more expensive. Effluent will be more expensive due to treatment costs. Ralph stressed that the cost of water will go up. Tucson Water revenue will be needed for all future investments, and could amount to a 3-4 percent increase in water prices per year. If the community wants to keep mineral content low in CAP water, it will be even more expensive. Such a decision would see about a 17 percent increase in annual water prices within the next few years. Ralph said that some of these costs would be paid through water rates. One issue is the extent to which current consumers should be responsible for paying these long-term costs versus how much new development should contribute toward these future costs.

Nancy said that the community will need to get beyond economics. She said that the community will need to eventually limit growth. Ralph responded that Tucson Water is not in a position to decide growth and that yes it was a broader community issue. But Ralph added that, even if Tucson Water refused to provide water for new development, state laws are written to still allow for growth by other means.

David asked about the 85,000 acre-feet of natural annual recharge available to be pumped in the AMA, versus the 40,000 to 50,000 acre-feet that Tucson Water anticipates will be available for use in this community. David wanted to know if it would be cheaper to get the additional natural recharge water (35,000 to 45,000 acre-feet) from these other areas and bring it to Tucson. Tim replied that Tucson Water can't assume that the City could get the entire 85,000 acre-feet. Tim said the City can physically access 50,000 acre-feet currently. He also noted that mines and agriculture do not have limitations on the amount of groundwater usage, but municipalities do. Ralph explained that, although the AMAs balance water inputs and outputs on paper, it doesn't make sense hydrologically because recharge in one area and pumping in another creates problems. Ralph said that laws don't allow cities to use groundwater for growth.

Sherry asked if the decrease in agricultural water usage was factored into the graphs. Tim said that it was not considered because this decrease would not affect the City. Ralph rephrased the question, asking if the retiring of agriculture would affect the City's water supply in the future. The answer is no. (Comment: The whole discussion which follows is unclear…we don't know what it means or what was originally meant). Tucson Water isn't in a position to acquire agricultural groundwater rights like they did in the 1970s; and this is not seen as a possibility in the future.

Ken said that his water bill $20 a month, indicating that he didn't think this was much money. He asked how much water bills would need to be increase before people start conserving water. Tim said that $20 a month is fairly average. Ken added that a 17 percent increase is only $3.40 a month. Dennis noted that some residential customers pay $10,000 a year. Tucson Water has a progressive rate schedule or an "inverted block" rate structure designed to promote water conservation with a penalty in higher levels of water consumption Residential customers in the above annual water bill range generally have larger properties with considerable water being used for irrigation.

Larry asked about the availability of CAP water in drought situations; stating that the Colorado River delta is drying up and Mexico isn't getting their allocation. He stressed there is no excess of water in the Colorado River (Comment: In fact, Mexico is currently receiving about 100,000 acre-feet more per year than what is required by agreement. This is due primarily to agricultural run-off and seepage from unlined canals such as the American Canal supplying Colorado River Water to California.). Ralph responded that Tucson has not been using its 136,000 acre-feet allocation. When looking at Arizona as a whole, the state has been taking its total 2.8 million acre allocation. Arizona's CAP allocation, however, will be the first to go if there is a shortage of Colorado River water. Within our allocation, municipal use gets first priority. To protect against future shortages, Arizona has been banking (storing) the un-used portion of its CAP allocation. Tucson has been putting the extra water into existing recharge facilities to store it. According to Ralph, if the CAP can't deliver the full allocation at some point, the Tucson Water well field will be able to continue to run for some time; however, recharge would then only happen when there was extra water.

Nancy asked what would happen if the uranium pilings near Moab were to contaminate the Colorado River. Ralph said that he, and millions of people, hope that doesn't happen—it would be expensive. [Comment: Dept. of Interior will soon be accepting public comment on their decision to move the uranium tailings to a lined repository in Crescent Junction, Utah. Notice will be posted in the Federal Register with a 30-day public comment period. Contaminated groundwater at the defunct Atlas Corp. mill site will also be remediated. Estimated cost of project is $300 million. - 7/25/2005 AP] Tim added that, by recharging Colorado River water, there is a contamination buffer because of the blending of the water with groundwater. Also, having a water bank gives the City time to deal with any contamination issues. Sherry asked if the restricting groundwater pumping to sustainable levels would allow riparian vegetation to recover in any of the areas washes/streams. Ralph replied that he doesn't think water levels will rise to 1940 levels. Hydrologic sustainability just deals with not allowing the water table to further decline; groundwater pumping cannot exceed natural and artificial recharge rates. Ralph assumed that the question related to Sherry's work on the San Pedro River, where water level draw down may be affecting riparian vegetation. Ralph doesn't think that concern applies to Tucson, because the water table is generally so far down below where riparian areas would benefit.

Susan asked about the population projections and water use projections upon which the anticipated future water deficit is based. Pima County is planning to use effluent to support riparian areas and species. Susan wanted to know how use of effluent water for restoration would tie with the City's HCP planning. Tim said it is a question of who owns the effluent and what the owner would do with it. The City, County, and U.S. Bureau of Reclamation have nearly all of the 80,000 acre-feet of effluent. The City owns about 50 percent, Pima County about 10 percent. About 10,000 acre-feet of effluent goes into the conservation pool, which is set aside for riparian projects. Out of the Tucson allocation, about 1/3 of it is used as reclaimed water. The Bureau owns about 28,000 acre-feet and that is discharged into the Santa Cruz River currently. Susan asked if the City and County have talked about committing to keeping the full 10,000 acre-feet in the conservation pool. Ralph said there is a lot of discussion and this is being worked out.

Michael asked how the upcoming bond decision might affect Tucson Water? Tim said that the bond package will get the bulk of CAP water into use, but would not have

enough funding to pay for mineral control of that water. He said that $43 million would go towards CAP use as a natural blend through recharge. But, if people wanted mineral control in addition to just blending it, Tucson Water would need more money in addition to the bond package. Ralph added that desalination, besides being expensive, would also create a brine concentrate that will have to be dealt with as well. The City would have to build evaporation ponds for the brine waste stream potentially requiring thousands of acres of City-owned land in Avra Valley.

Sherry wanted to know how Tucson Water plans to go to the public with these questions. Tim said that in Fall 2005, Tucson Water would have a public outreach campaign, educating people about costs vs. quality issues. Tucson Water plans to have different bottles of water quality in public spaces so citizens can taste the differences. The public needs to understand that a decrease in mineral content will not happen free of charge. On the other hand, having high mineral content can affect the infrastructure costs to homes because it is harder on household appliances/plumbing.

5. Next steps/Future meetings

Leslie said that the TAC group went ahead and scheduled meetings through the rest of the summer and suggested the SAC group do that as well. Future SAC meetings were scheduled for: July 13, July 27, August 17, and August 31, all from 3-5 pm at Game and Fish offices.

Leslie passed out several handouts regarding the Southlands planning area. Leslie asked the group to look over the handouts at home and come with any questions at the next meeting. These handouts included:

- Residential suitability map and Land Use Alternatives I, II, III from the Southlands Conceptual Land Use Plan
- Southlands summary sheet and maps showing (1) landownership, (2) zoning, (3) protected watercourses and important riparian areas, (4) Pima County Conservation Land System and acquisition priorities, and (5) Priority Conservation Areas for HCP target species
- Maps of potential habitat within the HCP Planning Area for pygmy-owl, Pima and needle-spined pineapple cacti, burrowing owl, Tucson shovel-nosed snake, ground snake, Pale Townsend's big-eared bat, and Yellow-billed cuckoo
- Overlay map of all modeled potential habitat for HCP target species
- Summary sheet describing zoning categories and associated development specifications, and a cross-reference between City and County zoning classifications
- Sections of the Land Use Code pertaining to the Environmental Resource Zone, Watercourse Amenities, Safety, and Habitat ordinance, and Open Space Zone

Leslie explained that, since the potential pygmy-owl habitat was identified based on a parcel-by-parcel assessment of orthophotos, it would have been too time consuming to identify potential habitat throughout the entire Avra Valley. In order to provide a landscape perspective, critical corridors and known dispersal routes were drawn on the potential habitat map to indicate most likely patterns of movement of pygmy-owls through this area. She also noted that, on the shovelnose snake map, a distinction was made between areas that had previously been cultivated and areas that had never been farmed. Since farming degrades habitat quality, including vegetation, soils, and prey

base, areas that have been cultivated were rendered unsuitable for the snake. These lands will slowly be restored through natural processes, although it is not known how long this would take, or they can be actively restored through human management.

At last meeting, SAC members had also requested specific information on zoning, land ownership, and ordinances that apply to the Southlands planning area. Leslie passed out packets of information about environmental ordinances, zoning, land use plans, land use, landownership, sensitive habitat areas, and vegetation communities in the Southlands. Leslie asked Michael about open space zoning. Michael said this zoning has only been applied to city-owned lands in the past; it could potentially be used for other lands, though. Leslie noted that the information from the Southlands conceptual land use plan is still in draft stage and does not have a lot of detail, but it will give a sense of where ASLD coming from with respect to development of state land. Leslie thought Catherine gave the impression, during her presentation before the SAC, that ASLD was thinking about revising the plan. Catherine responded that the plan was a consultants' interpretation, and it is a draft plan and has not been approved. Michael said, as a technical note, they superimposed city corporate boundaries onto the ASLD maps to help give a sense of which areas fall within the HCP planning area.

Sherry asked about the ERZ wash ordinances in the Southlands because she though they were told there were no designated washes. Michael responded saying they were proposed designations, but he would verify whether or not they had been formally designated. If the washes are only proposed, the map will be amended to reflect this.

Leslie asked if, due to the lack of time, SAC could move approving the March 31 meeting minutes to the next meeting. Everyone agreed.

Questions about the Tucson Water Department presentation can be directed to Tim Thomure 520-791-2689 or tthomur1@ci.tucson.az.us.