

**CITY OF TUCSON
HABITAT CONSERVATION PLAN
Joint Technical Advisory Committee and Stakeholder Advisory Committee
Meeting
June 22, 2005, 1:00 – 4:00pm
Arizona Game and Fish Department
555 N. Greasewood**

MEETING MINUTES

Attendees: Nancy Zierneburg, Ann Phillips, Brooks Keenan, Lori Lustig, Sherry Barrett, Larry Marshall, Rich Glinski, Linwood Smith, Trevor Hare, Nancy Peterson (alternate for City of Tucson – Environmental Services), Greg Hess, Lisa Duncan (Town of Marana – Environmental Division), Dennis Rule, Dennis Abbate, Mima Falk, Cathy Blaush, Emily Brott, Susan Shobe (alternate for Coalition for Sonoran Desert Protection), Guy McPherson, Marit Alanen, Carolyn Campbell), Michael Wyneken (City of Tucson – Planning), Leslie Liberti (SWCA), Jessica Lee (SWCA), Ken Kertell (SWCA) , Julia Fonseca (Pima County Transportation and Flood Control District).

1) Update on Recent TAC and SAC Meetings/Upcoming Meetings

a. *Scheduled SAC Meetings:*

- **July 13**, 3-5 pm, @ Game and Fish. Tentative Topics: Conservation measures for Southlands species and implementation options.
- **July 27**, 3-5 pm, @ Game and Fish. Tentative Topics: see previous meeting.
- **August 17**, 3-5 pm, @ Game and Fish. Tentative Topics: Conservation measures for Avra Valley species and implementation options.
- **August 31**, 3-5 pm, @ Game and Fish. Tentative Topics: Conservation measures for Santa Cruz River species and implementation options.

b. *Scheduled TAC Meetings:*

- **July 12**, 1-4 pm, @ Game and Fish. Tentative Topics: Conservation measures for Southlands species.
- **July 26**, 1-4 pm, @ Game and Fish. Tentative Topics: Biological goals, objectives, and initial conservation measures for Avra Valley species.
- **August 9**, 1-4 pm, @ **Fish and Wildlife**. Tentative Topics: see previous meeting.
- **August 23**, 1-4 pm, @ Game and Fish. Tentative Topics: Biological goals, objectives, and conservation measures for Santa Cruz River species

2) Old Business

All items will be held over until next regular TAC and SAC meetings.

3) New Business

a. *A Perspective on Restoration Potential in Avra Valley*

Ann Phillips

Ann began her presentation by locating the Simpson Farm on a map titled, "Pima County Acquisition Priorities and Lands purchased or in the works." She said that the City of Tucson bought the Simpson Farm in 1979 to obtain water rights. The Simpson Farm is actually comprised of three separate farms, and is approximately 1,700 acres. The Simpson Farm is located south of Pima Air Park and west of Trico Road. She also pointed out the City and County property holdings in Avra Valley and said that there is a lot of open land out there with lots of potential. Ann suggested the City work with other landowners in Avra Valley. Ann said that her presentation will focus on the conservation and restoration techniques used at Simpson Farm as an example of what could be done to restore lands in Avra Valley. She stressed that the Simpson Farm restoration techniques are relatively simple and inexpensive and are relevant to Avra Valley lands because they are similarly degraded. She said that the Simpson Farm restoration techniques cost approximately \$1,000 - \$10,000 an acre, in contrast with the \$92,000 per acre that the US Army Corps of Engineers is estimating for restoration along the Santa Cruz River.

Ann talked about the cottonwood/willow habitat that has formed from the effluent discharge from the wastewater treatment plants along the Santa Cruz River. She said that the Tucson Audubon Society looks from a hemisphere perspective, thus the Sonoran Desert bioregion riparian habitats are very important for many bird species that migrate large distances. (Ann showed several maps including a map of the western hemisphere, a map of the Sonoran Desert bioregion, and a the Santa Cruz River watershed.) She said that the Simpson Farm site has some of the 3,500 acres of Santa Cruz River floodplain on the site.

Ann said that the Tucson Audubon Society is concentrating most of their work on the northeastern part of the Simpson farm site and that they have a 99-year permit to do the restoration work. She showed a 1936 aerial photograph of the site and suggested to the group that Natural Resource Conservation Service (NRCS) photographs are a good way to research the historical conditions of land. She said that, in 1936, the Santa Cruz River was ephemeral and the Brawley Wash was a mesquite bosque. She stressed that it was important to know the historical conditions of the Simpson Farm so they could restore it to its natural conditions. She stressed that rather than call it "restoring it to natural conditions" it is more accurate to talk about "habitat enhancement." Since the land is dynamic over time, it poses the question of to what stage do you want to restore the land, how it was 50 years ago, 100 years ago, etc.

Ann said that the flood of 1993 was the second recent 100-year flood and it dramatically affected the Simpson Farm site. The Santa Cruz River rose over its banks and flooded part of the Simpson Farm site. She said the gradient of the Santa Cruz River is very flat near the Simpson Farms, allowing the flooding Santa Cruz River to deposit sediment across the site. The bridge nearby was silted in. Pima County and Avra Valley Flood Control District dug out the channel and created sandy flood control berms on the side of the river at the site. She said that natural recruitment of native and non-native grass has been abundant in the areas where the 1993 flood reached.

Ann said that west of the Simpson Farm site is the Ironwood Forest National Monument and the long-term goal is to create connectivity between the Monument and the Santa Cruz River so wildlife can cross. The first step they took in the restoration process was to do a wildlife/vegetation inventory and general observations on and near the site. They looked at various characteristics including soil, solar orientation, microclimates, and hydrology. She said they noticed the eastern part of the site had lots of tumbleweeds, thus they determined that was the area where water concentrated and would be a good area for restoration activity.

In October 2000, the Santa Cruz River had another large flow measuring approximately 3,000 cubic feet per second (cfs). (The 1993 flood was approximately 36,000 cfs.) She said they have observed that large flows happen a few times a year, and as the upstream of the Santa Cruz River becomes more urbanized, the flow downstream increases. She stated it was important for them to understand the frequency of large floods in the river. They needed to understand how frequently they were going to experience large floods on the site. She said that after the October 2000 flood, the effluent stream didn't flow down the same channel. This caused some cottonwood/willow trees to die, but natural recruitment occurred along the new channel. The nutrient-rich effluent creates an algae mat on the bottom of the riverbed, causing the water to infiltrate more slowly and thus allowing the effluent volume to travel further down the river. Flood events scour away this algal mat and, for a period following the flow, the effluent infiltrates more quickly upstream and does not reach Simpson Farms.

Ann stressed that it is really important to understand how water acts on a piece of land, and said there is a fine line between working with the elements and dealing with a natural system. She said that they are lucky at the Simpson site because there is a USGS gage upstream where they can get helpful data. She said that when the City purchased the land in 1979, they immediately removed the irrigation, leaving the land fallow. Since then, degradation forces on the site include hunters, illegal dumping, invasive species, and stray cows. Ann said that one of the first things the City did on the site was to put a wildlife-safe fence around the property.

Ann stressed that the Tucson Audubon Society wanted to use a set of restoration principles on the Simpson Farm Site. She said they gathered native seeds (desert willow and mesquite) from the site the first year and grew plants so the transplanted plants would be of the same genetic stock. They also purchased native seeds for the types of plants found on the site, although she said they were very picky about where those seeds came from. They experimented with seeding because it is relatively inexpensive; they spent approximately \$200-500 per acre, which paid for 12-15 pounds of native seeds per acre. To build the list of species that would be appropriate for the property, she said they found a list of native plants observed in 1908 from the Arizona Native Plant Society, talked to native seed vendors, asked local farmers, and looked at nearby lands. Once they had the list, they evaluated each species for the specific land characteristics including soil texture, heat, salts, value to wildlife, and how they work with other plants. She said they ended up with a list of 67 species that could be appropriate for the Simpson Farm site, that are native, and have historical significance. She said that over the last few years, through experimentation, they have found some plants do not work well on the site, such as the jojoba.

They used two different seeding machines and a land imprinter, which created mini-troughs across the land to catch moisture, rainwater and detritus. She said students from

Mountain View High School planted blue paloverde, desert willow and velvet mesquite trees in two foot long PVC piping because the root structure of the trees is very deep. She said the roots reached the bottom of the piping in only six weeks. The pipes make the trees easy to plant because the plant can slide out of the piping and the roots will be oriented correctly. Avra Valley sees approximately 10.5 inches of precipitation per year, but evaporation rates are very high. She said they started by using irrigation on site by retrofitting the old irrigation wells. Ann stressed their goal, however, was always to tap into rainwater. Irrigation lines are expensive to install and are an intense maintenance challenge. They had problems with their irrigation lines because rodents were digging down and eating through the lines. As a solution, she said they made raptor perches with dead tamarisk trunks to increase predation of the rodents.

With the help of volunteers, they dug passive rainwater harvesting earth swales a half-mile long, which was very cheap. She said they planted a range of plants along this berm, stressing that they didn't plant the same species creating a monoculture line of plants. They crowded plants that benefited each other. They also built horseshoe-shaped water harvesting structures. They put heat tolerant plants on the west side of trees (creosote and saltbush). They found that these berms not only captured rainwater, but they also captured native seeds from the site including volunteer sacred datura, wildflowers, devil's claw, and grasses.

They only watered these plants ten times in the last five years and they didn't "baby" any of the plants. The ultimate goal is to create an environment where plants can grow successfully, produce seeds, and spread them across the property. She stressed that the healthiest plants are those that are grown from seed. Swales also act as erosion control structures too, and it is better to do periodic swales, instead of making a uniform pattern across the land. The planting trial was funded with Arizona Game and Fish Department (AGFD) grant money.

Ann talked about other challenges on the site. She said they had some gully problems, where erosion was cutting gullies three feet deep and thirty feet long. They used resources available on the site, which included using harvested tamarisk limbs (they were trying to eradicate tamarisk) to fill the gullies. Detritus naturally accumulated on top. She said that in the four years since, there have not been any further erosion problems. They also used dead tree limbs and trunks to stop topsoil erosion by laying them along the contour of the land.

Ann also talked about excessive irrigation water that has accumulated on the site from an adjacent farm. The water was accumulating in a drainage basin along the road causing a lot of tumbleweeds to grow. She said they re-contoured the land, brought that water into the property to create a tail-water pond, and planted trees along the sides. In less than a year, tree tobacco had volunteered and had grown twenty feet tall. They decided to leave it in, and observed that it served as a nurse plant for the Mexican elderberry, desert hackberry and Gooding willow that had been planted. Yellow-billed cuckoo (YBC) was observed at this pond. The site was also used as an area to relocate 18 juvenile barn owls and burrowing owls with artificial burrows.

Ann said that in the last five years they have had more than 300 volunteers to help out at the Simpson Farm site. Volunteerism creates a stewardship mentality to the land. She said one time they had 100 school kids out on the site at one time, rotating between different work stations including nature hikes, plant identification, making seed pellets,

and planting. Some of the kids had never had their hands dirty before and that the work empowered them and rekindled the feeling of connecting with nature. She said that the Tucson Audubon Society puts on more field trips than any chapter in the country, which are all free and run by volunteers.

Ann talked about various monitoring efforts on the site. They have years of detailed bird, vegetation, and hydrological monitoring data. The US Army Corp came to look at the site, but were disappointed when they learned that it wouldn't be possible for machines to make similar berms to what had been constructed at Simpson Farms. Ann said that in Avra Valley, near treatment plant, there is a huge opportunity to protect the land. The riparian areas are marginal for building, but habit is glorious. She stressed that this is a good opportunity for City. Ann said she doesn't know if there will always be perennial flowing water in the Santa Cruz because eventually the City may pull their effluent out of the river. She said she would do what she can to keep City and/or County effluent in the stream.

Ann made an outline of what can be done in Avra Valley, and passed out copies to the group (see "A perspective on Restoration Potential in Avra Valley by Ann Phillips" on the last page of this document). Ann said that it would be helpful in Avra Valley to create a master plan, maybe using the HCP as a starting park, to work with the all other landowners to imagine a 50-100 year projection of restoration across that land. Onsite restoration can be done in the mean time, but she stressed the importance of a long-term vision. Ann suggested that property owners do research on their site, speak with old landowners, set up photo monitoring sites a couple times a year, designate a site observer who will go out to land during different seasons and times of day and record what they see. She stressed the importance of "getting to know your land" and that this process takes time.

Ann stressed the need to be familiar with the land in order to know what can be done on it. Ann doesn't believe one can push land in a direction where it is not prone to go in its natural tendencies. She said restoration is about observing the characteristics of land and then accelerating its natural tendency. She said that buying plants are cheap; rather it is the labor that makes restoration expensive. Ann said that the farms in Avra Valley have a lack of seed diversity. The species that is doing best on the Simpson Farm site is desert saltbush and four-wing saltbush. She said that they didn't set out to create a saltbush flat, but the soil and water characteristics were prone for that. It makes sense, however, because they were told that the first farmers in Avra Valley looked for saltbush flats because good for farming.

Trevor asked Ann about how the City can support restoration in the long-term when the HCP is a short-term process. Ann said, answering from the Tucson Audubon Society perspective, that the City has been very receptive to restoration work on the Simpson Farm site. She said the City has also volunteered to put up the wildlife-friendly fence on their Avra Valley lands. Having the Tucson Audubon Society out on the site all the time helps solve security issues, such as knowing when a fence is cut. This saves the City a lot of money. She said that the Simpson Site is now looked at as a template for what the City now does on other lands. Ann stressed that it is these kinds of discussions, like the combined TAC-SAC meeting, that is creating a turning point where we can build on each other's resources. She stressed the most important thing is to maintain dialogue.

Carolyn agreed that Avra Valley is a good opportunity for the City and County to work together on the HCPs. She said there was a master plan for Avra Valley water lands done approximately 10 years ago. It was based on a suggestion/proposal for restoration and it has good baseline information on proposed land uses. She said that another issue is that there is bond money being spent for acquisition. She said that unless the City and County work together, we couldn't have a comprehensive picture. She supports Ann's restoration work/proposal.

Dennis Rule said that the City is in the process of looking at resources in Avra Valley, especially the parcel near Ironwood Forest National Monument and Brawley Wash, and to see where lands were and were not irrigated. He said that some of the City lands are rangeland that was never irrigated. The City is doing an assessment and tossing around ideas, such as Ann was talking about, and trying to figure out what can be done on the ground to create microhabitats. He said that one problematic issue is that there are a lot of people moving into Avra Valley in these areas. We need to keep in mind that in 20 years from now there may be a lot more people over there on the private lands. Like Ann said, one of our largest problems is trespassing on land, tearing up land, off-road vehicles, and dumping. He posed the question of how can we actually protect the land out there on the long term. Ann said that part of the master planning process is to identify riparian corridors/linkages and population pressure and to create a wildlife corridor with no development. One problem is the City lands are not continuous. She said that part of the assessment should be looking at the inevitable population pressures.

Larry said that he and Ann were part of a presentation on the potential use of several thousands of acres in Pima County. On the team was Bob Sharp, an old time rancher, who said it takes 20 years to begin to know land. Larry thought this was a good comment and agreed that some of the studies the County and City are doing need to be continued out for 20 years. Ann said that while she agrees with Larry, that this type of restoration is not something where you have to wait 20 years, but can do small-scale experiments while observing.

Rich brought up the point that people who fund restoration need benchmarks/milestones and that is sometimes counter to the strategy of just having a long-term vision. Ann stressed the need for patience when it comes to restoration. Trevor said that it would be important to protect the entire Brawley Wash system from north to south. He said that Pima County is acquiring some of this land, but that it is going to be important for the City to get on board and come up with mitigation money buy more lands along Brawley Wash, although it is good that the County has been getting some of that land. If Pima County is looking in the area of the Tumamoc globeberry reserves to provide east to west linkage across Avra Valley, we really need the City to look at their lands and the potential to acquire other lands in that area.

Ann said that another interesting thing is we all are looking for money for restoration; she has brought one million dollars into the Tucson Audubon Society for restoration work. Groups need a work plan with an outline before can go to different agencies/organizations for funding. She stressed that you need a master plan broken into smaller parts that you can work on. The master plan provides the coherency, and the smaller plans can be used for proposals to get funding. Julia said that what Ann proposes is terrific. She says that the County needs to do this. There is a need to do floodplain management along Brawley Wash and its floodplain system; the problem is

that the County and the City lack land-use powers. She said that there are lots of development that doesn't go through a subdivision and rezoning processes. It would be a great thing for the County and City to team up to see how we can accomplish more wildlife connectivity and floodplain management, and provide a tool for fundraising. Ann said that she has been talking to Pima County Wastewater and that she missed opportunities for grants because of bureaucratic slowness.

Dennis asked Michael if there is a database that shows landownership? Michael said yes. Julia said that there are refined maps that actually show what is vacant land. Dennis Rule said the City needs to look at how much development can occur in Avra Valley that is basically out of the County's control. Sherry asked Dennis if he knows where future retention basins will be. Dennis said that they are looking, and that the final location isn't known, but he does know that the City is going to stay out of washes and the Simpson Farm site. Sherry asked if there is a way to interject biological information into the planning process. Dennis said they have to go through the Section 7 process, and they will use the HCP to inform them as well. Sherry said it is good to look at a landscape basis, to make sure connectivity is preserved. Ken mentioned that SWCA published a study titled, "Geological Resources, Mitigation Opportunities and Restraints for City of Tucson properties in Avra Valley in 2003." He said it looked at all the City parcels, drainages, etc. Leslie noted that the report is on City HCP website. Susan pointed out that the maps Leslie gave out to SAC show the ownership of parcels in Avra Valley. Trevor said TAC would have some sophisticated maps to start looking at conservation measures. Ann said another resource is SWCA's report on shorebirds, because it looks at the depth of water needed to create shorebird habitat.

b. Pima County Species-Specific Mitigation Measures

Julia Fonseca

Julia said that she is the environmental program manager for Pima County Transportation and Flood Control District and has served on the scientific technical team for the Sonoran Desert Conservation Plan (SDCP). She said that the SDCP is a long-term vision to protect natural and cultural heritage in the County. Although the SDCP planning work (SDCP) was done in 2001, Julia said that the planning work is never actually done because it is a vision statement and that we will never get there entirely. Julia said that she would use the terms MSCP and HCP synonymously in her talk. An MSCP is only one tool to achieve the SDCP. She said that the SDCP is the regional framework, while the MSCP is area-limited. The SDCP has no term limit, but the MSCP will be a 20-30 year agreement with USFWS.

Julia said there are differences between the City of Tucson's HCP and the County MSCP. She said the technical team developed the biological goals, then that effort was built into County's comprehensive conservation land use plan. There is a close integration with county land conservation plan. The difference with the City's HCP is that they are doing the HCP focusing on areas where they know the City is going to expand into (i.e. Southlands) is trying to get ahead in the development effort in the Southlands so conservation can be worked into the development. Julia said that the City is not proposing to take the HCP out to the rest of City areas.

Julia proposed the question: Why do bio-planning? The County's biological goal is to: "Protect the full spectrum of native plants and animals through maintaining ecosystem structure and function." It is a landscape approach, rather than just singling out specific

species. Land use would have a major effect on how the County can achieve this. The HCP process is helpful in doing this, and is providing funding. For the County's MSCP, the foundational document is the conservation land system (CLS) with biological goals and land use guidelines. The County wants to see development in areas best serviced with urban infrastructure and not in biologically sensitive areas. Julia stated the main difference between SDCP and the City of Tucson HCP is that they County believes that if they keep enough of the landscape and process intact, and manage and monitor, this will succeed better than species-by-species, site-by-site approach alone. The County is implementing this hypothesis on a daily basis through rezoning, proposed ordinance amendments, land acquisitions, new management efforts, establishing ranch conservations, and changing how the County manages some of their own lands. Julia said that if we keep enough of the landscape and processes intact, this would be more effective.

In every MSCP there is a portion called "changed circumstances" that can address changes that are reasonably anticipated. (i.e. fire, flood, drought, invasive species, vandalism or listing changes.) For example, Pima County supports buffleggrass management with other jurisdictions. She said that a robust MSCP creates resilience and adaptive management responses. Pima County will be revising their NPPO and increasing their native plan nursery. Urban landscapes are also being created by contractors and private landowners. She would like to see more Sonoran hedge groves, thickets, vines that can be a seed base to get seeds back into the landscape. Keeping the soil in tact that provides burrows, aeration, etc. She stressed that feral pets are a difficult issue, and although it is very controversial, we need to try to deal with issue. Sherry said that education is the best way. Larry asked if there is an estimate of population size? Julia said she doesn't know, but she is aware of studies done on feral pets in the Saguaro National Park periphery and that they caught cats along the San Pedro River. Cathy said in the AGFD presentations "Living with Urban Wildlife" many people are receptive and just don't know that pets are such a problem.

There also needs a mechanism for people to dispose of unwanted aquarium pets, so they don't end up in the aquatic environments. She said there was talk about putting CAP water into the rivers for discharge, but there is a concern over contamination with invasive species. Another changed circumstance includes desiccation due to groundwater over-pumping and other reasons. Pima County inventoried the organisms that live in intermittent perennial streams. County has limited powers to limit/regulate groundwater pumping. She said that they do have some authority directing people on landscape. The main thing the County can do is to use the CLS to de-emphasize development in certain places, for example in Arivaca, which is where we have a very limited water budget. Under the rules that existed before the last go around in the CLS meetings, it would have been really easy to upzone to a very intensive water use permit. Now it is more difficult to get that kind of rezoning. The other tool we have is acquisition of lands or water rights with bond money. She said there are still great frontiers for water conservation, and the County has recognized the work Tucson Water has done. She asked if there is some way we can work together to design a program to add an incentive to save water. What about incentive to save water to "give" back to environment in areas that could use the water to support wildlife? She said that there are only a few places where rise in water table will show a biological benefit; these include the lower Sabino Creek, Tanque Verde, Rincon Creek, and Aravaca Creek.

Julia said that the County found that when the water table dropped, the only place vegetation could survive were on the fringes of the irrigated zones. For example, 49ers golf course is bringing water up to land surface where it can be biologically available, and they are bringing water to an area that has limited water budget. The limitation to system is that it is artificial, but it has been sustainable because of the economic need to dispose of water in cheap way. There is only a narrow corridor because water is not available outside the small stream. Another limitation is that there are not a lot of aquatic invertebrates in the Santa Cruz River, except for some mosquito fish. She said that this has to do with the poor water quality (effluent). Pima County does realize that the quality of water coming out of the treatment plant is poor and has committed to increase water quality at Ina Road treatment plant. She said that this needs to happen at the Roger Road plant too. The system could also have more insect-eating birds if water quality is improved, and that is one way nitrogen gets exported from the sewage into the desert. Rich asked if the City is going to improve water quality. Julia said that it is up to Pima County because treatment plants are run through the County Wastewater Division, but that the ownership of effluent is a different story. The City owns the effluent but doesn't have responsibility of treating it. The Pima County Board just agreed yesterday (June 21) to improve the water quality standards, which includes upgrading the infrastructure. She said that this would put 14,000 acre-feet of better quality water into the Santa Cruz River.

Julia said that one of the things the City and County have done is created an allocation of wastewater comprised of a 10,000 acre-feet (af) conservation wastewater pool. One option is to leave all of this water in the river. The jurisdictions could also decide to leave some of their individual portions in the river also. She said that 10,000 af is not enough to provide stream flow all the way down to Simpson Ranch or Marana. Julia said that there are not native fish in City of Tucson HCP and wondered why. She said that there are two species could have potential for recovering. In 1943, a topminnow was caught in the Midvale Farm canal. AGFD is working with USFWS to make these species available for mosquito control. Nancy Zierenburg asked if there is an existing population of these fish. Julia said she waiting for USFWS and AGFD to get back to her on that. Desert pupfish or other pupfish could also be made available for reintroduction. Rich asked if Santa Cruz River pupfish is the same as monkey spring pupfish (which disappeared in 1960s). Julia said yes. Julia said that the County and City should prepare for a possible voluntary reintroduction because they might come in on their own, and we need to be ready to allow for natural recovery and/or stocking.

Julia said that the natural habitat for burrowing owl is covered in both the City HCP and SDCP. This species relies on other species to dig burrows and, in the urban environment, they rely on the round-tailed ground squirrel. She said that in the Santa Cruz River arroyo system, soil piping, which is caused by erosion, naturally excavates burrows. She proposed that a way for burrowing owls and burrows to be protected could be through something like blue staking. Trevor asked how to mitigate for soil piping. Julia said it is problem in terms of soil desiccation, but it is creating habitat for bats and owl populations. She said that the County doesn't do anything about it because it is a large-scale problem. They could try to put organic material into the hole, but it has limited success. The soil is also a concern for builders too. Rich asked about latest status on burrowing owl. Sherry said there is nothing new since the petition to list the owl from California. Sherry said she expects a petition in the near future. Sherry said it is a species that people should be concerned about, but people like them too. Julia noted

that the SDCP is going to deal with species that are never going to be listed. Sherry said Pima County is being more proactive with some species, and that is a good thing.

Julia talked about CFPO and why the Organ Pipe National Monument and Avra Valley population are not going to be sufficient; they need to recover the Northwest Tucson population. She said that all jurisdictions seem to be on board, but they need state trust land reform and augmentation of populations. Scott Richardson is going to give a presentation on the current update of CFPO at the next SDCP science team meeting on June 28, 2005. Augmentation efforts are going to need to happen to create a movement corridor. She said that there are 24,000 acres of Avra Valley lands that could provide a movement corridor in the north-south direction. In one instance, she said, there has been an effort in the Section 7 consultation for CASVARP to leave corridors for movement. She suggested that the City has a good foundation in its previous land use study. The one area to point out in Avra Valley for wildlife movement in an east-west direction is an area that adjoins Saguaro National Park (West). She said there are some culverts under the CAP in this location. She would like to see the City of Tucson manage their lands to provide for east-west movement of wildlife through this area.

She said the Tucson shovel-nose snake is a proposed City HCP species, and that a recovery effort is needed for this species. She said there are City of Tucson lands in Avra Valley that are important to both the SDCP and the City HCP. She suggested that coordination with Pinal County also be taken into consideration. Julia said that the County is now going through the process for a master sewer plan, which includes infrastructure and roads.

She said that long-term growth is going to hit populations of Pima pineapple cactus (PPC) hard and that the conservation land system is insufficient to protect this species. The main native pollinators are ground-nesting bees, thus we need to protect the soil. She also said that we need to support other cacti that keep the ground-nesting bees healthy; we need to worry about conserving the more abundant species such as cholla and prickly pear. In the Altar and Santa Cruz River valleys, there needs to be off-site areas to be set aside in perpetuity to conserve PPC and to serve the needs for pollinators that move genetic material between the populations. Paul Fromer is working on improving the PPC habitat model. She noted that there is an intersection with the City HCP in the Southlands, south of I-10 where populations have already been affected by growth. She said that the Davis-Monthan Air Force Base properties have never been surveyed for PPC, but bond money has been allocated for Davis-Monthan lands, which could be combined with preserving the cacti.

Julia said that the County is going to use their NPPO to help achieve the goals of the SDCP. She said that the City's native plant ordinances are similar to the County's and, because of that, the City NPPO likely has some of the same defects. She said that rather than working on aesthetics and preserving specimens, the revised NPPO will be a shift to protecting soil. She added that the County's new NPPO might cover needle-spined pineapple cactus (NSPC) also, because they are seeing high impacts to NSPC. The County wants to see more land conservation to protect species. For example, she brought up the fact that the future mall north of I-10 near Colossal Cave Road is right in NSPC habitat.

The County did yellow-billed cuckoo (YBC) surveys on both the effluent-dominated part of the Santa Cruz River and along Tanque Verde Creek in 2002 and YBC were

observed at both locations. She said that the County doesn't know how to mitigate for this species because of the high land prices along riparian areas. She suggested that maybe they need a conservation easement program where they can pay to keep some of the land in low-density development, but the trick is that it has to satisfy MSCP in the long-term. She said that the 49ers golf course could be influential to YBC.

Julia talked about species that are not in the City HCP but in the MSCP including Tumamoc globeberry, Abert's towhee, Bell's vireo, mesquite mouse, Huachuca water umbel and the lowland leopard frog. She said that the Huachuca water umbel could be easy to recover in the Santa Cruz River effluent area. She said that the Tumamoc globeberry is also found in the Tucson basin and in Avra Valley.

Julia talked about the lands that are part of the City's HCP and questioned why others are not included. She said that there is a larger area that is impacted by Tucson's annexation, not just the areas that are being focused on in the HCP. She said because the City has more power to regulate development than the County, it could be good area to annex. Julia encouraged the City to reconsider including these areas in their HCP, areas where there is biological sensitivity. The City's participation is key to implementing the SDCP.

Carolyn talked about the CAP being a barrier, and asked if any of the acquisitions the County has been considering are located where the CAP is buried. She said that it seems easy for the US Bureau of Reclamation to make a wildlife-crossing using feature that protects canal but helps wildlife. She asked Sherry if this has happened in California. Julia pointed out that there are already a number of wildlife crossing (culverts) for deer. Sherry said retrofitting has been done. Carolyn said that rather trying to focus on acquiring land around locations where the CAP is buried, why not try opportunities of retrofitting CAP. Trevor asked about the culverts Julia had mentioned were under the CAP. Julia said that they are box-shaped culverts, about 5-6 feet tall, that go under the canal. She said that Paul Krausman did the deer study that lead to the siting of the existing culverts under the CAP. Sherry said it would be good to have his input on these issues.

Trevor noted that, through the SAC process for Pima County, it was decided that industry and the public would split cost of conservation, and that \$172 million dollars of bond money has been approved by the public. He said that the private sector needs to come up with the other half of the money needed to implement the County MSCP. [Clarification: The Steering Committee recommendation to Board of Supervisors states that "*Funding for new MSHCP land acquisition should be shared fairly between the public and private sectors. Not more than 50% of MSHCP funding should come from affected private landowners. Not less than 50% of MSHCP funding should come from publicly –funded sources.*"] He suggested that this money could be used to purchase lands in Avra Valley to provide connectivity. Julia said that with the development in Avra Valley, it may be better to do on-site mitigation verse off-site mitigation. Trevor asked if Pima County is struggling with off- versus on-site mitigation. Julia said that the science team is dealing with it right now. Susan said the City is looking at three main sub-area, and asked Julia if these areas are satisfying the County's concerns with respect to their MSCP, or does she see gaps in the area covered. Julia said those three areas will go a long way and are terrific, but that there are lands that are not in those three areas which will be impacted by the City's future annexations. She said it will be important to see how the City deals with riparian areas, such as Pantano and Rillito washes, and the multiple

use area adjacent to Saguaro National Park. She said that the MSCP is just one tool. If there were parallel efforts to implement the conservation land use system, it would fill those gaps. Sherry asked if there is anyway Julia could participate more in the City effort to help with the coordination of the two HCPs. Sherry said that these efforts need to be tied together. Julia said she is open to the idea, but is very busy and would prefer to just be invited to those specific meetings at which she can contribute to the discussion. Carolyn said that meetings could be structured strategically to deal with certain issues.

For more information on the Sonoran Desert Conservation Plan and its draft MSCP, visit: <http://www.pima.gov/SDCP>

c. Open Discussion

Leslie noted that this meeting is the first time both the SAC and TAC have met together, so the remainder of the time is a chance for the committee members to talk to one another and ask questions. Sherry said that one concern coming from SAC is that the group wants to know how the City and County plans are going to mesh, so rules for the development community are the same for both plans. She doesn't want developers to "shop" between the two jurisdictions to find the cheapest or easiest place to develop. She suggests that the Tucson HCP work with what the County has developed to make them mesh.

Leslie said that from a process perspective, the long-range focus/goal in this first phase is getting a rough draft HCP together in order to get a sense of the issues and what needs to be done. Then, rather than jumping into finalizing the HCP, Leslie suggested spending 1-3 years going through a comprehensive regional planning effort, during which we can look at how the draft HCP interfaces with growth areas, infrastructure, and future annexation areas. Leslie said that right now we are laying the baseline and it is well recognized that regional coordination will be extremely important for all the species we are dealing with. Trevor said that, from his perspective, he is trying to encourage the City let the TAC think outside the boundaries of the planning area.

Rich said that Tucson is looking at the area in finer detail than the County did, and thus the Tucson HCP may not mesh with the County plan very well. Sherry said that her goal is that the pieces come together smoothly. She said that the other thing she would bring up is the Gila topminnow and support what Julia said in terms of this species. Paul Fromer was the one who came up with the concepts of having a Safe Harbor list and a HCP list, where the Safe Harbor list would focus on restoration. She said that the SDCP is meshing the two lists together so the Safe Harbor species are included in the HCP, and she would recommend that the City consider doing this as well. She continues encouraging the inclusion of topminnow because it occurs in upper Santa Cruz River, especially considering the restoration work that is going on with the Santa Cruz River. She suggested adding the Huachuca water umbel, although that conservation effort depends a lot on the water quality of the effluent. Leslie said that City has two separate lists, one for HCP target species and the other for potential Safe Harbor and Candidate Conservation species. She said that these two groups are still be considered separately because the impacts are very different; instead of addressing take of riparian species, we're really looking at the results of restoration effort. Leslie said that they have left this for later in the process. Sherry said she would encourage them to combine the lists. Leslie agreed, and said that ultimately the two sets of species will be combined into a single HCP.

Carolyn said an issue she brought up at a previous SAC meeting was that, with the SCDP, the citizen committee had a lot of influence. She asked TAC members what SAC members could be doing now while they are waiting for TAC to get the biological work done. Trevor said it would be valuable to know how land use ordinances could impact species (NPPO, buffer overlay zones, etc.) and asked how we can create a biological ordinance for HCP. Julia said that with the County's NPPO revisions, maybe City could work on theirs too. Leslie said that the Julia makes a good point, and that they have looked at the language of the ordinances. Leslie said that in terms of the next step, it is difficult to know what direction to go and whether we are prepared to start picking apart ordinances. Susan said that SAC members have a lot of background information, but SAC doesn't know what the TAC thinks is needed in terms of conservation. Susan wants to know how TAC is coming along with those recommendations, so SAC can see what exists on the ground and to figure out what they can do to address implementation. Leslie said that groups are a little off because some presentations haven't been done for TAC yet, that are very relevant, such as Catheryn Balzano's presentation. She said that TAC has requested maps so can look at specific measures for the Southlands area at the next TAC meeting. She said that on July 26, Tucson Water will give a presentation to TAC members on the 50-year water plan.

Leslie said that threats/stressors have been identified for each species, and based on this information, draft goals and objectives have been developed. Susan asked why these presentations Leslie mentioned are important because she felt that she didn't get very much out of them when they were presented to SAC. Trevor replied it is important because it is hard to figure out impacts on the ground without seeing these presentations. Carolyn pointed out we don't want to have a water plan and HCP that don't mesh. Ken noted that SWCA is currently meeting with various City departments separately to develop maps and more concrete descriptions of the proposed covered activities. Part of the difficulty is that Tucson Water doesn't know exactly their plans will be because they have to wait for the community to make a decision on what is needed. Sherry said it is important to know their initial plans so the science team can make recommendations about the development based on biological sensitivities. Ken added that the departments are working on best and worst case scenarios for proposed development so the TAC at least has a sense of what may be proposed. Ann said that, hopefully, we are going to communicate to both the Arizona State Land Department (ASLD) and Tucson Water during these meetings. Trevor pointed out that this is important for the SAC also, and that he is interested in what Lori has to say about the development vision. Lori said that the City has yet to come forward with the planned community development (PCD) zoning, which is a follow up to the HAMP. Lori said the development community would have to wait to see what the Swan Southlands will look like because that will be the first to be developed.

Michael thought that it would be valuable for the TAC to hear from ASLD to get a sense of the ASLD planning process, especially since ASLD builds their land use models the same way we build habitat models. It will be an interesting process for them to hear and where there is potential to influence the ASLD planning process. He said that, with respect to the PCD, it wouldn't give all answers; it will only apply to areas larger than 500 acres of trust land. He said that the policy direction in terms of wash preservation, open space, connectivity, and trails is in the HAMP itself. The PCD deals primarily with procedural issues, in terms of what needs to be submitted for review so that targets set out in the plan (HAMP) are met. Lori asked that if this zoning be applied in Southlands. Michael said yes.

Susan suggested that the TAC should think about questions for Tucson Water and ASLD ahead of time and give the questions to the presenters; it may make the presentations more insightful and meaningful. She said she wasn't satisfied by some of the answers they gave to the SAC group. Trevor said that may be helpful. Emily suggested having an ASLD reform presentation on July 26. Susan wanted to what ASLD's comments were on the HAMP. Michael replied that ASLD's main comment is they don't want to preserve any land along washes beyond the floodway. Michael said ASLD is working with century old regulations where their business model cannot capture value from open space and conservation. Michael said that they Lincoln Institute have an interest in state lands, and Emily said they are collaborating with Sonoran Institute in the initiative process.

Ann wonders if SAC could create a flow chart/map telling us what other regional planning processes are happening and a time frame, to see what we are ahead or behind schedule on. She suggested including any the ordinances that are related with those processes. Michael suggested that the SAC could do a mind mapping exercise to generate implementation and funding ideas for the HCP. Julia said that with SDCP, the science team said what should be done, and stakeholders then have to figure out how to incorporate the biological concerns with the implementation tools. She noted that the SDCP SAC team is still meeting and talking about these issues. Sherry pointed out that one difference is in the authorities the City has verse what the County has, and how the City has more power to control development on the ground. Carolyn said that it would be good just to see those differences mapped out. Trevor agreed, saying as biologists we don't think about the fact that the City has more power to influence what happens on the ground. Sherry said that if both the City and County are going to revise NPPO, maybe the two stakeholder groups could work together. Michael agreed this would be a good opportunity for this group to have a voice in suggesting recommendations to City ordinances when they are presented to major and council. He thinks the SAC could have a strong voice on a variety of issues that get presented to mayor and council. Susan talked about opportunities in which the two jurisdictions could work together.

4) Call to public

There were no members of the public at the meeting.

5) Next steps/Future Meetings

Leslie said that, at the next SAC meeting, we focus on mapping out ideas for implementation and funding options and then work out which approaches are more feasible than others. She asked the SAC members to be thinking of ideas beforehand so they can come to the meeting ready to discuss options. Leslie said at the next TAC meeting, they will be looking at detailed information within the Southlands, and maybe have the ASLD presentation by Catherine.

Handout

*“A Perspective on Restoration Potential in Avra Valley”
by Ann Phillips, Tucson Audubon Society*

- A. Get to know the site
 - 1. Assemble maps and aerial photographs of the site
 - 2. Download the knowledge of previous landowners
 - 3. Set up photo-monitoring points, photograph yearly
 - 4. Designate a site observer to visit the site seasonally, during rains, after floods, etc. to record observations
 - 5. Understand the larger context of the site

- B. A basic restoration approach for large land areas
 - 1. Remove degradational forces
 - 2. Fence the site with wildlife fencing
 - 3. Identify onsite resources and put them to use
 - 4. Identify existing natural recovery processes and accelerate them
 - 5. Add low cost, highly effective interventions at key locations
 - a. Create seed source "islands"
 - b. Work in existing depressions to concentrate water
 - c. Work around existing trees and shrubs where new seedlings get shelter
 - d. Work the microclimates
 - e. Work at the right time of year
 - f. Actively concentrate rainwater under tree canopies
 - g. Plant and seed at favorable times of the year
 - h. Use animals, wind, rain to spread seeds, fertilizer, etc.
 - 6. Conduct small scale trials, develop feedback loops, adjust as needed
 - 7. Take a long-term perspective; shift the site to a regenerative condition over time

- C. Develop a master plan for Avra Valley using HCP as a stepping off point for long-term restoration.
 - 1. Take a very long-term view
 - 2. Work with adjacent landowners to maximize habitat benefits
 - 3. Build on existing water resources: recharge basins, tail water, storm water