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DOCENT REORIENTATION

—Andrew Donovan-Shead

On Saturday, 25 March 2006, thirty-five docents attended the Docent Reorientation meeting in the Research Station at the Tallgrass Prairie Preserve.



*Reoriented for 2006 – front page as promised.
by Andrew Donovan-Shead*

Dennis Bires opened the meeting promptly at 10 o'clock and thanked Ann Whitehorn for the pot of coffee and cookies.



*Perhaps this is your better side.
by Andrew Donovan-Shead*

The State burn-ban had been lifted, which meant that Bob Hamilton had to go out and set fire to some prairie. We saw the smoke during the day and, on our way home, when we drove through smoke from the grass burning at the side of the road.

Dennis recognized David Turner for his efforts at new docent training, Betty Turner for hers at docent recruitment in Bartlesville, Dorris Mayfield for her work maintaining the Nature Room, George Pierson for his work keeping the web-site current for The Nature Conservancy as well as the web-site for all of Oklahoma, and Andrew Donovan-Shead for producing The Docent Newsletter.

Dennis reported that Anita Springer has accepted the task of organizing the Docent Reorientation next year. Peggy Selman has volunteered to do Roster Management.

Dennis said that we still need a volunteer to be the Docent Recruiter for Tulsa, and another person to become Workday Coordinator. At present, Dennis is trying to fulfill these obligations; he said that they could be done better by two persons instead of one who is also doing other things.

Dennis Bires has for several years been filling multiple volunteer positions. Perhaps we should recognize Dennis for his good work in the Tallgrass Prairie Preserve Docent Program. We can help him by volunteering our time for these open positions. None of the tasks are difficult individually, but combined under one person they are not getting the attention they need. Help Dennis and the Docent Program by sharing the burden.

Dennis relinquished the podium to Harvey Payne, the Director of the Tallgrass Prairie Preserve.

Harvey said that these reorientations were becoming more like a family reunion every year because he sees docents who have been involved with the preserve for as many years as he has. He said that the docent program is unique within the Conservancy and does wonderful work, interacting as it does with the public. Most telephone calls to the office are from potential visitors inquiring about the presence of a docent to whom they can talk when they reach the Visitors Center.

According to Harvey, the preserve is doing extremely well and is financially secure. Next year

the operating budget is approximately \$900,000. Funds generated by direct sales at the Visitors Center go into the general operating fund and just about cover the costs of maintaining the shop. Importance of the Visitors Center is in the relationship it develops with visiting members of the public, something that is hard to quantify but that empirical evidence shows is important. Harvey said that the preserve has a large positive effect on the local community in that it generates local revenue from the activity produced by visiting scientists, students, tourists, and school visits. Certainly during the course of the last fifteen years Pawhuska has started to look more prosperous, or so it seems.

Harvey reported that the staff are excited about the future of the preserve. The bison are doing well, though the calf crop was less than expected last year. Our 1,900 bison are expected to produce 400 to 500 calves within the next few weeks, though Harvey says that they are uncertain about how the herd will be affected by the drought this year. Bison, though, are much more resilient to drought than cattle and more intelligent when it comes to getting a drink. Cattle will get themselves bogged in mud when going for receding ponds of water whereas bison seem aware of the dangers. In any event, the springs feeding the Sand, Wild Hog, Dry, and Hickory Creeks provided enough water for bison. Bison will travel for water whereas cattle seem to need ponds nearby. Some existing man-made ponds have been returned to prairie, others remain in use.

With the increase in the price of oil, Harvey says there has been a corresponding increase in drilling activity on the preserve. However, though this is undesirable from a conservation point of

view, the conservancy has had good luck working with the oil companies to limit surface damage. More than 100 active wells remain. Plugging abandoned wells is fraught with bureaucratic difficulty; four or five wells were recently plugged, but it took several years to accomplish. Even when plugged, it is uncertain whether they are plugged all the way to the bottom. Always there is a risk that abandoned wells decay with potential to pollute the ground water. All wells on the preserve are “stripper wells” that produce a large volume of brine and a smaller quantity of oil. Some wells produce gas. Either way, the brine is the real cause for concern because it is highly corrosive of the steel piping and toxic to plant life when it escapes into the surface environment. It is perhaps a paradox that the Research Station was brought into existence largely by the efforts of Dr. Kerry Sublette at the University of Tulsa, where he does research into remediation of environmental damage caused by spills from oil wells. Result of Dr. Sublette’s research on the Tallgrass Prairie Preserve is exported all over the world.

The burn-ban has had an adverse effect on the preserve management plan, in that spring burning should be done by now. Statewide, the annual spring-burn will be detrimental to ground nesting birds who are getting ready to breed. Application of herbicide kills broadleaved plants that attract insects and produce seeds, both of which birds need to live. Greater prairie chicken numbers are showing something of a recovery on the preserve, but Harvey said that the Sutton Avian Research Center census program revealed that the birds are wide ranging such that, away from the preserve, the numbers don’t look as good.

Harvey said that this year the approximately

2,000 acres of prairie hay meadow located near the south entrance to the preserve will be opened to bison. Apparently, the meadow has been largely untouched for a long time and is a diverse source of plant species that it is hoped the bison will spread to the rest of the preserve.

Harvey talked about the change in focus to research into cattle management that is being done on the preserve. Now the plan is to experiment with season-long grazing of cattle from April 15th until October 15th using patch burning and no supplemental feeding, with a stocking rate of 1 steer per 2.5 acres compared with a commercial stocking rate of 1 steer per 2 acres. One quarter of the preserve is set aside to graze approximately 4,350 cattle. Results of the research will be made available to ranchers. If research shows positive results then ranchers can save significant money using the techniques to eliminate supplemental feeding. The rancher who works with The Nature Conservancy by leasing the grazing rights is part of the experiment; the arriving cattle often need to recover from shipping fever in the early part of the year before fattening on the new season growth. Essentially, it is a risky business and only good results will light the way for other ranchers to follow.

Another benefit that comes from being able to eliminate supplemental feeding is less damage to the ground. Putting out feed cakes causes the ground to get badly trampled where the cakes drop.

Once again it was good to hear from Harvey. He grew up on a nearby ranch and knows what the ranching business is like and understands the risks involved to the livelihood of the rancher. His

experience makes him an excellent bridge between the world of science and the pragmatic people who make a living raising the meat we eat. In fact the Tallgrass Prairie Preserve is a laboratory of immense value to us all.

Dennis Bires returned to the podium and recognized Wayne Middleton who produced the business cards available in the gift shop for distribution to visitors. Wayne said that we should send him an email when the supply runs out so that he can make arrangements to restock.

Dennis said that Bob Hamilton reports the trails in need of maintenance. Dennis said that we will be having a trail maintenance day on April 15th. Volunteers should meet at 10 a.m. at Visitors Center, bringing gloves and any equipment that might be thought useful such as saws and shovels.

On 13 May, Dennis reminded us that the annual prairie road crew, cookout, and hike will take place. We will be going to the same vicinities as last year except the hike will be in a different direction though similar to last year in difficulty.

Dennis encouraged us to participate in the Adopt-a-mile road cleaning program. It is a sad fact that everywhere humanity goes, trash goes too. The countryside is littered with trash, and now plastic bags seem to grow on trees.

Dennis admitted John Boxall and David Turner to the 2005 Docent Hall of Fame. You can see their names on the plaque in the Visitors Center.

Next, Dennis introduced and relinquished the podium to Steve Forsythe who now works for The Nature Conservancy as the Southern Flint Hill Project Manager. However, among the “producers,” that is to say the ranchers, he is a

superhero known by the sobriquet *Nature Boy*¹.

Osage County consists in about 1.5-million acres of land. The Greater Flint Hills occupies an area of 4.5-million acres. Steve explained that his job is to meet with land owners, ranchers, and producers in an effort to preserve “a vanishing legacy.” Of the “vast grasslands that once blanketed much of the mid-American landscape.... The last expanse of tallgrass prairie survives as the Flint Hills, located in eastern Kansas and northeastern Oklahoma. This grassy landscape of gently sloping limestone and chert hills remains today as one of the most productive grazing lands in the world, providing the cultural and economic backbone for dozens of rural communities and hundreds of working ranches. It is also of critical importance to a vast array of native wildlife, especially grassland birds like the Henslow’s sparrow and the Greater Prairie Chicken. Unfortunately, much of the Flint Hills is vulnerable to development.... The Nature Conservancy actively works in partnership with ranchers, landowners and state agencies to safeguard the unspoiled nature of the Flint Hills. To this end, the Conservancy... responds to requests from ranchers and other conservation groups by presenting programs about conservation in the Flint Hills and the use of conservation easements.”²

Steve’s job is to meet with and encourage the producers to think about prairie preservation through conservation easements, deed restrictions, with tax benefits as an inducement. In short, it is about good stewardship of the land and preventing

1 Nature Boy: I’m joking about the superhero, but the sobriquet is true, as described by Steve – Editor.
2 Flint Hills: Quote drawn from the The Nature Conservancy brochure *Conservation easements in the flint hills* – Editor.

subdivision and erection of vertical structures.

Steve said that any tract of land greater than 2,000 acres is a candidate for a conservation easement. Another person does the same job as Steve in the northern half of the Flint Hills.

Steve illustrated his talk with the help of a map that shows the distribution of intact Tallgrass Prairie, concentrations of prairie fragments, crosstimbers, water, and urban areas. He was receptive to the idea of displaying a copy of this map in the Visitors Center with some notes explaining the overall plan.

At noon we stopped for lunch, reconvening at 1 p.m. when Dennis introduced George Pierson.

George demonstrated attributes of the web-site, including the procedure for registering for duty at the Visitors Center. George also explained that the web-site is a good place for docents to go and learn information useful during our interactions with visitors. George said that a quick way to get to the web-site is by using the search term "*tallgrass prairie docents*" in the Google search engine; the web-page appears at the top of the list of results.

After George, Dennis introduced Andrew Donovan-Shead who talked about the Docent Newsletter saying that all docents are encouraged to write articles for publication. In fact Jane Watson volunteered to write articles for future editions, so expect to be quizzed by Jane soon. Andrew said not to worry about syntax, grammar, or spelling just get your contributions to him by the 10th of each month, giving him time to prepare the newsletter for publication on the 15th. The newsletter is published on time each month, so any

late contributions will be postponed until the following month.

Betty Turner asked about the format of pictures. Andrew said that he could process most picture formats. High resolution pictures will usually be re-scaled using the GNU Image Manipulation Program (GIMP) to help keep the final PDF file size below 1 Mbyte, so that it can be downloaded via dial-up connections in a reasonable amount of time. Also the images are usually leveled and sharpened. It is better to send a high-resolution image because it is easy to discard information whereas the reverse is impossible.

If you send pictures for publication, you must own the copyright. Violation of intellectual property rights is illegal.

Andrew photographed the assembled docents and promised to publish the pictures on the front page of the newsletter.

Dennis introduced Dr. Michael Palmer who gave a slide presentation that was a whirlwind tour of scholarship at the Tallgrass Prairie Preserve, including the whirlwind.

To date, science activities at the preserve have produced fifty-nine scholarly articles, twelve chapters, and nineteen theses. You could view science as another crop of the Tallgrass Prairie, one that will produce escalating returns. Scientists build on the work of other scientists. Oil reserves below the surface of the preserve will eventually dwindle to nothing whereas, on the surface, biodiversity will grow to some natural limit and the growth of science is, as far as we can see, unlimited. A local economy based on science looks like an excellent long-term investment; there

are many goods and services needed to support the scientific enterprise. Science flourishes in an academic environment where there is a free and open exchange of information: it withers and dies in the poison gas of secrecy. Dr. Palmer's presentation illustrated how vital the interdisciplinary exchange of information is between subject-matter experts working together as a team. Our future is teamwork and the Tallgrass Prairie Preserve is one focal point where scientists can gather, exchange information, survey the frontiers of knowledge, and push that frontier outward in all directions.

When The Nature Conservancy first purchased the Chapman-Barnard ranch and turned it into a preserve, local people feared that the land was being taken out of production. Today the preserve appears to be more productive than ever, in a way that is more resistant to the vaguaries of the weather. Scientific crops are nurtured by whirlwinds, fire, drought, disease, viruses, and cultural history. Knowledge is forever, it teaches us how to be better stewards of the world in which we live. Hitching our wagons to the engine of science is a smart thing to do. Pawhuska has done so, it is the gateway to the Tallgrass Prairie Preserve.

Dr. Palmer's presentation was the penultimate event of the day. Afterward, we went on a walk for the remainder of the afternoon, guided by Mike Palmer. We took the easy route out to the top of rising ground, by a tank battery, where would could look out across the vast expanse of prairie where Dr. Palmer explained the major features of the prairie laid out before us.

Our return journey was a little more difficult as Mike led us through a section of the

crosstimbers, pointing out a wealth of detail around us. At one point, we found some bison wool caught on a tree. Teasing apart the woolen fibers, Dr. Palmer identified within four different species of seeds and what looked to him like the casing of a fly pupae, indicating that the bison are a vector for the distribution of plants.



*Dr. Michael Palmer's Guided Walk
by Wayne Middleton*

Our day ended in a gorgeous spring afternoon and an opportunity to deepen our understanding of the natural world. Dr. Palmer is a busy scientist who is always very generous with his time, ready and willing to interpret the complexities of nature for the layperson.

DOCENT VIDEOS

—Betty Turner

While waiting on a visitor, several video tapes are available for docents to play on the VHS player. Located in the Docent office, the player and tapes are in the shorter storage cabinet, bottom left. All videos are quite interesting. The March 2001 videos are of speakers during docent reorientation. If you should have a laptop with you, a DVD version is also available of Jo Brook's

presentation. Check these out as time permits between visitors. Be sure to return each item to its storage location.

- 3 March 2001 “Old & New Floral Friends” by Kim Shannon, Botanist; The Nature Conservancy Oklahoma Staff.
- 3 March 2001 “Geology of Osage County” by Neil Suneson, Oklahoma Geological Survey.
- 3 March 2001 “Birds of Osage County” by Dan Reinking, Sutton Avian Research Center
- 1995 “We Call Them Last Great Places” by The Nature Conservancy.
- 16 April 2005 “Childhood Ranch Experiences” by Jo Brooks, Tallgrass Prairie Preserve Docent.

BUTTERFLY COUNTS

—John Fisher

It's time to get ready and plan for this year's annual 4th of July Butterfly Counts. Here are the dates and details for the upcoming NABA 4th of July Butterfly Counts on The Nature Conservancy's Oklahoma preserves. We're adding a count at the Black Mesa Nature Preserve this year. This count will primarily focus on the canyons leading up to the Mesa but will include Kenton, Black Mesa State Park, and Lake Etling in the count circle.

The North American Butterfly Association (NABA) collects a \$3 fee to help defray costs of compiling and publishing the count results. A complete list of all 2006 Oklahoma butterfly counts can be found on the Tulsa Audubon

Society's Butterfly Count page.

<http://www.tulsaadubon.org/butterflycounts.htm>

- May 27th – Four Canyon Preserve second year. Time: 9:00 AM. Where: Preserve entrance 13 miles west & 8 miles south of Vici. Contact: John Fisher 918-245-8662 rgs455@cox.net.
- May 29th – Black Mesa Nature Preserve first year. Time: 8:30 AM. Where: Black Mesa State Park Office. Contact: John Fisher 918-245-8662 rgs455@cox.net.
- June 10th – Pontotoc Ridge Preserve eleventh year. Time: 10:00 AM. Where: Preserve Headquarters. Contact: Walter Gerard 918-747-4771.
- June 13th – Keystone Ancient Forest Preserve fifth year. Time: 8:30 AM. Where: Convenience store parking lot at 209th West Avenue exit from US highway 412. Contact: John Fisher 918-245-8662 rgs455@cox.net.
- June 24th – J. T. Nickel Family Wildlife & Nature Preserve sixth year. Time: 9:30 AM. Where: Preserve Headquarters in Sawmill Hollow. Contact: Walter Gerard 918-747-4771.
- July 1st – Tallgrass Prairie Preserve fourteenth year. Time: 9:30 AM. Where: Preserve Visitors Center. Contact: David Edwards 918-865-7398 dafydd@cimtell.net.

PRAIRIE ANTS

—Van Vives

Here is some information about the prairie ants. This material was found at the web site

<http://www.npwrc.usgs.gov/resource/1999/ants/ecology.htm>. Ants are very abundant on prairies and as in other ant colonies they live in a complicated social order. All prairie ants are eaters of flesh and enjoy sweet nectar and honeydew.



Ant Anon., by Steven Greenstreet

The largest group of ants in a colony are predators, which hunt other invertebrates. They patrol the ground and nearby plants, killing insects and spiders for food. The food they scavenge is rich in protein and is fed mostly to the ant larvae. Some insects, such as hairy, hard-bodied, fuzzy, or smelly insects, are mostly avoided.

The sweet substances gathered by the ants are used as food for the adult workers. Many prairie plants and wild flowers secrete nectar from glands on leaves, stems and flower heads. The ants lick up the sweet nectar and transport some back to the ant nest. Since the nectar flows so slowly the ants will spend long periods of time waiting for it to form droplets. If leaf-eating insects show up the ants will attack them, thus protecting the plant.

Leaf- or stem-sucking insects excrete excess sugars as a clear fluid called honeydew. It is not surprising that some ants protect and promote the aphid population on a plant. The ants will chase away any plant-chewing insects to protect their host plant. So it is a mixed blessing for the plant as the aphids extract sap and this can weaken the

plant, while the ants protect the plant from leaf-eating insects.



*Large-flowered bellwort – Nickel Preserve
by George Pierson*

Some of the *Acanthomyops* and *Lasius* species give up the job of hunting above ground for a job of tending and rearing “livestock” below ground. They live among aphids and they protect and care for them much like cattle ranching. The aphids produce honeydew and the ants softly caress the aphids with their antennae and the aphids excrete the honeydew in response to the gentle touching. The ants that do this constantly can not live on honeydew alone, but must have some protein. They get this by killing some of the young aphids.



*Rue anemone – Nickel Preserve
by George Pierson*

Most ants gather plant fragments, seeds and other plant parts which they eat, or incorporate into their nests. Certain plants rely on this for seed dispersal. Violets, sedges, trout lily and trillium produce nutritious and attractive appendages on their seeds to take advantage of this ant trait. The seeds are taken home by the ants and the soft appendages are eaten. The remaining seeds are then discarded in the ant's trash heap, where they find ideal conditions for germination.

Large amounts of soil are moved due to the tremendous number of ants on the prairie. This is done in the normal activity of nest building. The mixing of earth by the ants is beneficial to the prairie ecology. Waste, discarded dead remains, and inedible parts of their food enrich the soil surrounding the ant hills. Some plants thrive on the abandoned ant mounds. Certain small animals and parasitic arthropods spend most of their lives in ant nests.

The prairie ant is just another species which we normally view as a pest, but which has positive ecological traits.

SYMBIOSIS

—Andrew Donovan-Shead

Symbiosis is something Dr. Palmer mentioned on our guided walk during Docent Reorientation. It appears again in Van Vives article on ants, above.

According to the 1913 supplement to Webster's dictionary, symbiosis is "the living together in more or less imitative association or even close union of two dissimilar organisms. In a broad sense the term includes parasitism." A *host* is usually the larger of the two members of a symbiosis whereas a *symbiont* is the smaller member of the partnership. Symbiosis is further subdivided into these categories, drawn from the Wikipedia entry on symbiosis at www.wikipedia.org:

"Parasitism, in which the association is disadvantageous or destructive to one of the organisms and beneficial to the other."

"Mutualism, in which the association is advantageous to both."

"Commensalism, in which one member of the association benefits while the other is not affected."

"Amensalism, in which the association is disadvantageous to one member while the other is not affected."

An example of a mutually beneficial relationship can be found within our alimentary tract that is home to a constellation of bacteria that help us by breaking down the food we eat, enabling us to more efficiently absorb nutrients. Indeed there is a school of thought that this process is more efficient in some people than in others, giving rise to greater body mass; a theory

holds that this is governed by the bacterial population dynamics where one species of bacteria is more prevalent than another. This kind of symbiosis is known as ectosymbiosis, where “the symbiont lives on the body surface of the host, including the inner surface of the digestive tract or the ducts of exocrine glands.” Benign bacteria inhabit our skin protecting us from invasion by more virulent forms that would be injurious to our wellbeing.



*Wood sorrel – Nickel Preserve
by George Pierson*

Myrmecophitic plants have evolved to provide “shelter and food to certain species of ants which live in symbiotic relations with it. Special adaptations for this purpose exist; thus, *Acacia spadicigera* has large hollow thorns, and species of *Cecropia* have stem cavities.”

E. O. WILSON

—Andrew Donovan-Shead

Dr. Edward O. Wilson is on The Nature Conservancy Board of Directors. He made his name through his studies of ants. He says: “My first published article at the age of 19 was a report on the notorious red imported fire ant, depicting

this species in its earliest expansion across the southern US. It was not, however, my first publishable observation. In 1942, while exploring the ants of my neighborhood in Mobile, I discovered a nest of the invader near the port docks and subsequently reported. It was one of the first two observations of the species in the US.”



*Bird's Foot Violet – Nickel Preserve
by George Pierson*

Dr. Wilson’s new book *Nature Revealed: Selected writings, 1949-2006* is published this month by The Johns Hopkins University Press, ISBN 0801883296.

The information for this article is drawn from the *Turning Point* section of *New Scientist* magazine for the week of 1 April 2006.

WHAT'S BLOOMING AT THE NICKEL PRESERVE

—George Pierson

Spring wildflowers are out in the Ozarks. Visit to the Nickel Preserve in April to see white and yellow trout lily, bloodroot, wood sorrel, large flowered bellwort, birds foot violet, anemone, and others. The preserve has had some rain in the last couple of weeks and the wildflowers are soaking it up.

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