

NEW MEXICO'S VOICE FOR NATIVE PLANTS



NEWSLETTER

of the

NATIVE PLANT SOCIETY
OF NEW MEXICO

OCTOBER, NOVEMBER, DECEMBER 2013 VOL. XXXVIII NO. 4



As part of the 2013 annual meeting, botanist Jim McGrath led a fascinating field trip to White Mesa to hunt for rare plants in gypsum outcrops.

Photo: John Wilson

Inside This Issue

- 2 From the President ❖
- 2 NPSNM's Grants Program ❖
- 3 2013 Annual Meeting: A Meeting of Minds ❖
- 4 Who's Who at NPSNM ❖
- 5 Sedgucation II: A Historic Day at Valles Caldera National Preserve ❖
- 6 Robert DeWitt Ivey: 1923–2013 ❖
- 7 Sandra Lynn—Poet, Historian, Author, Botanist: 1944–2013 ❖
- 8 Chapter Activities & Events ❖
- 11 The Awkward Relationship Between *Homo Sapiens* and Planet Earth ❖
- 14 Jack & Martha Carter Conservation Fund ❖
- 15 Membership ❖

From the President

by *Renée West*

The summer has been flying by, and now we're at the Equinox—starting to drift away from the hot temperatures. August was a busy month, with the annual state meeting and the governor's official designation of August 17 as New Mexico Native Plant Day.

The state meeting was exciting and well organized. The Albuquerque chapter did an excellent job in spite of the many difficulties that came along: a change of venue required some fast rearrangements (they came off very well); two prominent NPSNM members died during the summer as well. Both Dewitt Ivey and Sandra Lynn had worked for our Society in various roles. Both will be missed.

A week or so after I returned home, my copy of the Lady Bird Johnson Wildflower Center's magazine arrived in the mail from Austin. It contained an article by Sandra—about Judith Phillips and “extreme gardening.” Sandra had written several articles for that magazine and done a fine job of keeping New Mexico in the forefront.



The annual meeting tackled a difficult issue head-on: the changing climate. We got lots of information from fascinating speakers. The field trips were a treat. Steve and I attended both of the field trips relating to gypsophilous plants, led by Jim McGrath. A bit of July rain surely helped. There were so many flowers that we kept Jim on his toes identifying them all.

A reminder: The NPSNM currently has two vacancies on our volunteer staff: Membership Secretary on the board, and Conservation Committee Chair. In addition, it seems likely that we will need a new Finance Chair early next year. Jack Carter has been doing a fine job in leading us through the process of finances, but he has worked for this Society in volunteer positions for many years and is looking forward to a well-deserved retirement.

We really need some talented and dedicated people to work for the Society. Please think about joining us! Call or email me (see page 4) if you have any questions. ❖

Legacy: What we leave behind, we give to the future.

NPSNM encourages members to consider including NPSNM in their wills.

For further information, call Barbara Fix at 505/989-8654.

NPSNM's Grants Program

The Society will consider funding for any project within or adjacent to New Mexico that contributes to the goals of the Society (education, research, and conservation). Currently we would particularly like to assist in conservation projects.

Requests are reviewed and voted on by the Board of Directors. Individuals and organizations will be notified as to the acceptance or denial of their proposal. If the proposal is unsuccessful, the Society will provide reasons for the denial.

Grants are awarded to individual projects with a goal that can be completed within a stated time period and within a specified budget.

Donations are given to non-profit organizations to sup-

port ongoing work that meets the objectives and goals of the NPSNM. For example, the NPSNM gives annual donations to the five main herbaria in the state.

Grants and donations are limited to a maximum of \$1000. Grant payments may be given over time or in a lump sum. Donations are given as a lump sum.

The deadline for applying for 2014 will be December 31, 2013. Requests will only be accepted electronically. Proposals received after the deadline will not be considered. Please see www.npsnm.org/conservation/grants/ for more information. ❖

2013 Annual Meeting: A Meeting of Minds

by Barbara Fix, Albuquerque Chapter

The annual meeting in Albuquerque, with its in-depth presentations on climate change, was a rich experience. The speakers gave us the facts as best they could ascertain them. Past patterns gleaned from archaeology, dendrochronology, and other sciences tell us we have been living in an anomalous time of a wetter-than-to-be-expected climate. Drought, with episodic extremes, will likely be the new norm for our extended region. The question for us, as a Native Plant Society, and as individuals, is: What do we need to do, what can we most effectively do to help native plants, and thus our society, adapt to this new reality?

I had the rare privilege of going to Jack Carter's "field trip" of using the key in his expanded *Trees and Shrubs of New Mexico*. Jason Roback, a young science teacher at Sandia High School, sponsored us in his classroom/lab, the very same one DeWitt Ivey taught in years ago. He showed us "the pond," a fairly large fenced-in wetland area, built post-Ivey, outside his lab. That's where we got our three woody species to key out. In the small bit of spare time not mandated by the state standards, Jason takes his students there to look at actual plants. He's even had them make up their own keys. He goes there alone, too, just to relax.

Hearing Jack and Jason exchange thoughts about their profession, across their generations, was like watching a vigorous plot of rare plants striving to ensure pollination.

Jack Carter sees a path for us: We need far more widespread knowledge of and interest in botany, especially that of native plants and their habitats. Students should be taught to look at and learn about plants as an essential part of schooling, as was the case a generation or so ago. Because botany is no longer seen as important, few teachers now themselves have the knowledge to teach it. The incentives for students to study botany are no longer there. Many universities no longer even offer botany as a course of study. Teaching standards make committed teachers like Jason have to cram in unrequired botany only after nearly the entire year has been consumed in the required curriculum; these standards have to be changed. We need incentives, such as botany making teachers' jobs easier and a lot more fun, to get children outside and enjoying learning about what's around them.

That is in fact a major part of NPSNM's mission: education, which can take many forms. Thank you, Jack, and Martha and Jason and everyone else who's doing their part in helping us all adapt and evolve. ❖

Below: Botanist Jim McGrath (center) examines a plant found in gypsum rock during the White Mesa field trip. Photo: Renée West

Right: Mark Ward, Conner Flynn, and Alexandra Permar on the San Lorenzo Canyon field trip at the annual meeting. Participants saw more than 50 species of flowers, 5 desert bighorn mountain sheep, and numerous lizards. Photo: George Miller



The Newsletter of the NPSNM

October–December 2013. Vol. 38 No. 4. This newsletter is published quarterly by the Native Plant Society of New Mexico (PO Box 35388, Albuquerque, NM 87176) and is free to members. The NPSNM, a nonprofit organization, is composed of professional and amateur botanists and others with an interest in the flora of New Mexico.

Original articles from the newsletter may be reprinted if attributed to the author and to this newsletter.

Views expressed are the opinions of the individual authors and not necessarily those of NPSNM.

Next deadline is December 1, 2013. Articles and high-resolution artwork supporting the NPSNM's mission are welcomed and can be sent to the editor, Sarah Johnson, at sarita@gilanet.com, or PO Box 53, Gila, NM 88038.

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Mission The Native Plant Society of New Mexico (NPSNM) is a non-profit organization that strives to educate the public about native plants by promoting knowledge of plant identification, ecology, and uses; fostering plant conservation and the preservation of natural habitats; supporting botanical research; and encouraging the appropriate use of native plants to conserve water, land, and wildlife.

Sedgucation II: A Historic Day at Valles Caldera National Preserve

by William R. Norris, Gila Chapter

A New Mexico state record was set on Friday, July 26, 2013, at Valles Caldera National Preserve, for the most number of people gathered in one place at one time while attempting to identify a sedge (see photo). On this last day of an NPSNM-sponsored workshop on *Carex* identification, approximately 30 plant enthusiasts from throughout the Southwest braved drizzling rain and occasional high winds while pulling up one sedge after another, carefully studying each through a hand lens while workshop leaders (myself, Jim McGrath, Russ Kleinman) barked out key characteristics to look for. I very much doubt that a crowd as large as this has ever before gathered in New Mexico to simultaneously apply their botanical acumen to this task: identification of sedges in the genus *Carex*.

What does it take to identify a *Carex* species in the field? First, it pays to look around and observe all the plants in a given sedge population. Do multiple stems of the sedge in question arise together to form tufts? Or, in contrast, do the stems arise singly or in pairs, emerging from nodes along extensive subterranean rhizomes to form extensive colonies? One of the more common NM sedges that exhibits this latter growth pattern is field sedge (*Carex praegracilis*), which we observed at Valles Caldera. Documentation of growth form is essential for identification of most *Carex* species. *The most important piece of advice I can offer anyone who endeavors to learn the NM (or any) sedge flora is to document the growth form of each specimen collected, either through careful field notes or, preferably, through digging up the basal parts of the mystery sedge to demonstrate the presence or absence of rhizomes in the ultimate herbarium specimen that results.*

Knowledge of flower structure in *Carex* is also essential for identification purposes. Given that pollination is by wind, it is easy to understand why *Carex* flowers, which are always unisexual (i.e., either male or female), lack showy sepals and petals for attracting insect pollinators. The male flower in virtually any *Carex* species consists merely of several stamens subtended by a single, usually brown scale; it's not much to look at. The corresponding condition of the female *Carex* flower is substantially more complex. The pistil (composed of two or three fused carpels, using modern concepts) is likewise subtended by a scale. *However*, the pistil itself is enclosed by an additional structure, often sac-like in appearance, called a *perigynium* (which literally means "around the female"). From an evolutionary perspective, the perigynium represents another scale that has surrounded and ultimately enclosed the pistil by fusing on the margins. From an ecological perspective, the perigynium,

when inflated (especially in wetland species), can float and effectively disperse the enclosed achenes. From a taxonomic perspective, specific characteristics of the perigynium (hairy versus non-hairy, beaked versus non-beaked, etc.) are diagnostic for particular species. Those of us who participated in the sedge-identification workshop spent a full day working in a lab (Jemez Springs Educational Center), peering at perigynia through microscopes while attempting to key out almost two dozen *Carex* species. Thank goodness for distinctive perigynium characteristics among different *Carex* species!

During the workshop, one of the most frequently uttered phrases was "sexual position." There is no way to avoid this sensitive topic when attempting to put a name on a particular sedge specimen. Given that an individual *Carex* flower is always unisexual, there are all sorts of ways that the two flower genders allocate themselves within and among the distinct units (= spikes) of a *Carex* inflorescence on a particular plant. Frequently, complete separation of male and female flowers is enforced via their occurrence on separate male and female spikes (e.g., porcupine sedge, *Carex hystericina*). Or the two sexes can commingle within the same spike, with either male flowers occurring on top of female flowers (New Mexico sedge, *Carex occidentalis*), or vice versa (rusty sedge, *C. subfusca*). Finally, male and female flowers can intermingle randomly within a given spike in no predictable pattern. Thus, while mention of sexual

Continued page 10

Approximately 30 participants in the 2013 NM sedge ID workshop study a sedge at Valles Caldera National Preserve.

Photo: Bob Sivinski



Robert DeWitt Ivey: 1923–2013

by Gene Jercinovic, Gila Chapter

Of those who cherish the plants native to the Land of Enchantment, there are few unaffected by the small and simple word *Ivey*. Thousands have paged through his *Flowering Plants of New Mexico* while puzzling over a plant in the field. For all of us, his passing on June 23 was a sobering tragedy. As I write this, I place him among the greatest souls I have known, the consummate gentleman, the softest purveyor of knowledge, always unwilling to be special.

Robert DeWitt Ivey was born on October 8, 1923, in Tampa, FL, but the Iveys actually lived in nearby Plant City. When he was five, his father accepted a job as a newspaper editor in Jacksonville, and the family relocated. There, young Ivey attended public schools, but the process of education was always under his own management. Early on he became fascinated with reptiles, animals, and birds. By the time he graduated from high school, he also knew that he had a quiet passion for drawing and art. The future was inescapable.

In 1941 he enrolled at Florida Southern College (now Florida Southern University) in Lakeland, FL, just five miles east of Plant City. That December the U.S. entered World War II. DeWitt was ineligible for service because of his height (6'8"). In fall 1943, he transferred to the University of Florida at Gainesville, planning to major in English. Later in his junior year, after a chance meeting with a mammalogist, he decided to take extra courses in order to graduate with a double major, English and biology. In spring 1945 he graduated *magna cum laude*. He was valedictorian and became a member of Phi Beta Kappa. He stayed on at Florida and in the spring of 1947 received an MS degree in mammalogy.

That summer he decided to seek employment. After sending out a number of applications, he received a job offer from the University of NM and was intrigued by the prospect. For two academic years he served as an instructor in the biology department there, but felt a need to pursue a PhD. He spent a year in graduate school at the University of MI but chose not to continue his studies. After a year at the College of Charleston in SC, he became homesick for NM and by the fall of 1951 was teaching biology at Albuquerque High School. In 1959 he transferred to Sandia High, also in Albuquerque, where he taught biology for the next 31 years.



Vivian & DeWitt, Manzano Mountains

He loved to take his students on field trips to study and trap mammals but, with concerns about his health, he began concentrating on plants. He began making study units for his students with his own illustrations. In 1982 he married Vivian Porter. In 1983 they put together the first edition of *Flowering Plants of New Mexico*. Over the years they traveled all over the state collecting and studying plants. Four more editions of the book appeared, culminating in the fifth in 2008. *Flowering Plants of New Mexico* is by far the most consulted plant reference in the state. Countless fresh and tattered copies rest in the hands of plant enthusiasts all over NM.

He officially retired from the classroom in 1990. He donated his extensive mammal collection to UNM. His bird collections went to Adams State College in CO. Recognition of his achievements and contributions began even before his retirement. In 1963, he was designated Science Teacher of the Year for NM by the National Science Teachers Association. The following year, the NSTA selected him as Science Teacher of the Year for Region 7 (a five-state area). In 1993 the NM chapter of The Nature Conservancy awarded him with their Aldo Leopold Conservation Award. In 1995 he was given the Sigma Xi award for his dedication to the teaching of science. In Santa Fe in 2003, NM Governor Bill Richardson formally recognized his decades of contributions to science and teaching in the state. NPSNM presented him with a lifetime membership in honor of his efforts.

Robert DeWitt Ivey always chose to adore the process of living and to grasp each moment fully. Tales abound. He built a catamaran to sail NM's lakes. He dabbled in taxidermy. He taught ballroom dancing. He developed his own style of mammal trap. He spent the decades since his "retirement" working to make the vast natural universe real and accessible for those around him. He gave countless talks all around the state and was always willing to help others with identification of their plants. In 2012, in conjunction with Dr. Kelly Allred of New Mexico State University, he published *Flora Neomexicana III: An Illustrated Identification Manual*, a book that allows botanists to determine the genus and species of any vascular plant known in NM.

His mark on the natural history of this state is indelible. ❖

**Sandra Lynn:
Poet, Historian, Author, Botanist
September 16, 1944 – July 16, 2013**



When Sandra agreed to organize the program for the NPSNM annual meeting, we knew it was in the best of hands. Sandra was that kind of person, always dependable, always committed to doing her best. And as an exceptional poet, author, teacher, and one gifted with a love for the majesty and mystery of nature, her best always exceeded expectations. Sandra threw herself into life with a thirst for understanding, experiencing, and expressing the beauty of nature. For her, life was a work in progress moving from one accomplishment to the next creative challenge. She leaves us with memories of her infectious smile and laugh, her positive outlook, and an example of how rich life is when you live your passion. ❖

George Miller, Albuquerque Chapter

The Wildflower Club Meets

© Sandra D. Lynn 2013

My friend the botanist, the passionate student of wildflowers, her face is composed of petals and bone. A gentle hesitancy has settled around her mouth, an internal trembling like fireweed among fingers of air.

We have come to see slides by another botanist. One after one we view them, the flowers' white throats laid open against the shiny platters of Hawaiian leaves, their crimson corollas and dancing stamens, their ovaries girdled in yellow dust. God in the guise of Evolution gave them to us.

Millennia were required to shape them so perfectly, to match their colors to the eyes of bees,

to smooth pathways into their hearts, to attune them to the deepening pools of dusk and the footsteps of moths, to teach them the mathematics of spirals, the legerdemain of lengthening days.

God has all the time in the world.

Following the River in Winter

© Sandra D. Lynn 2013

In late summer the river ribbon slips its mud and green suppleness down the stiff old spine of New Mexico.

But in winter the river turns to the sepia of the photograph on the mantel of relatives whose names even my mother cannot remember, turns to the ache in the air of a cappella voices, clear and dying away.

Below the black lava shelves the gravel outwash hills, the old cottonwoods furrowed, brown, chuckle only a few leaves on their branches. Sandhill cranes chitter. Hundreds of crows burst from trees like buckshot. Sunflowers hang broken, gone from sunhead to husk.

Chapter Activities & Events

For further information on the following events, notify the contact person listed, or visit the chapter's web page: First go to www.npsnm.org; click on Local Chapters; then

Albuquerque

All scheduled monthly meetings are first Wednesday of the month at 7 p.m. in the NM Museum of Natural History, 1801 Mountain Rd. NW. For more info on programs contact Pam McBride at 505/343-9472 or ebotpam@msn.com or Carolyn Dodson at 505/268-7889 or cdodson@unm.edu.

Oct 2 Meeting. A Different Approach to Pest Control. Philip Clark, owner of Organic Landscaping in Santa Fe.

Nov 6 Meeting. Mistletoes of New Mexico. Retired USFS plant pathologist Dave Conklin.

Dec 7 Annual Holiday Potluck. 11 a.m.–2 p.m. at Pam McBride's house in the north valley.

El Paso

All programs are second Thursdays at 7 p.m. (coffee social at 6:30) at El Paso Garden Center, 3105 Grant Ave. unless otherwise noted. All events free unless a fee is specified. Non-members always welcome. Info: Jim Hastings, 915/240-7414.

Oct 10 Annual plant and seed exchange.

Nov 14 Meeting. What's Happening at the Franklin Mountains State Park. Adriana Wyker, park ranger.

December Annual Holiday Potluck.

Gila (Silver City)

All programs are free and open to the public. Meetings are third Fridays at 7 p.m. at WNMU's Harlan Hall, Rm. 110, with refreshments following the program. Activity updates posted on www.gilanps.org.

Oct 18 Meeting. Speaker TBD.

Nov 15 Meeting. Alien Plant Invasion. Donna Stevens, co-author of *Common Southwestern Native Plants*.

December No meeting. Annual holiday potluck date TBA.

select the chapter. **Hikers** should always bring plenty of water, hat, sun protection, lunch and/or snacks, field guides, and wear sturdy shoes, suitable for rough, uneven ground.

Las Cruces

Meetings and workshops are second Wednesdays (unless otherwise noted) at 7 p.m. in the conference room of the Social Center at the University Terrace Good Samaritan Village, 3011 Buena Vida Circle, Las Cruces. Field trips are Saturdays; most last into the afternoon. Participants must sign a release-of-liability form. Children must be accompanied by their parents. Programs and field trips are free; nonmembers always welcome. Contacts: Carolyn Gressitt, 575/523-8413; Al Krueger, 575/532-1036.

Oct 9 Talk. Along the Old Apache Trail. Lisa Mandelkern.

Oct 12 Field Trip. Travel to Tucson, AZ, to tour Tohono Chul. John White, leader. Meet 8 a.m. Meeting site, travel info TBA.

Oct 19 Potluck Luncheon at La Cueva, Dripping Springs Natural Area. 1:00 p.m.

Nov 9 Field Trip. Hike in Valles Canyon and upper Broad Canyon. John Freyermuth and Carolyn Gressitt, leaders. Meet 8:00 a.m. at the parking lot of the U.S. Post Office in Fairacres.

Nov 16 Field Trip/Talk. Long and Various Relationships Between Plants and People of the Desert Southwest. Alex Mares, NM State Parks Ranger. Guided walk of the El Paso Museum of Archaeology grounds.

December No meeting. Happy Holidays!

Otero (Alamogordo)

For field trip information, contact Tim Mills, tim.mills1@gmail.com, 210/883-7170; or Helgi Osterreich, hkasak@netmdc.com, 575/585-3315 or 575/443-3928. More info should be available by the beginning of each month.

Oct 19 Field Trip. Otero Mesa. Meet 7:30 a.m. at old



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Nov 2 Annual meeting of NPSNM–Otero chapter, potluck, and elections. Gordon house on Lower Cottonwood Canyon, 12:00 noon. Info, directions to come.

December No activities.

San Juan (Farmington)

Meetings are third Thursdays at 7 p.m. at San Juan Community College. For more info, contact Donna Thatcher, dthatcher@fmtn.org or 505/325-5811.

San Juan (Southwest Colorado)

Fall, winter, and early spring programs about the flora of the Four Corners states will again be in the Lyceum Room of the Center of Southwest Studies, Fort Lewis College. For details see <http://www.swcoloradowildflowers.com>.

Santa Fe

New meeting location! Meetings are third Wednesdays at 6:30 p.m. at Christ Lutheran Church, 1701 Arroyo Chamiso (in the triangle of Old Pecos Trail, St Michael's Dr., and Arroyo Chamiso; across street from fire station). For more information, contact Tom Antonio, tom@thomasantonio.org, 505/690-5105. Meetings and talks are free and open to all.

Oct 16 Workshop. Not Your Mama's Nopalitos. Jim Hastings, El Paso chapter's Gringo Gourmet.

Nov 20 Meeting. New Mexico Forests: Past, Present, and Future. Craig D. Allen, USGS Research Ecologist, Jemez Mountains Field Station, Los Alamos.

Dec 8 Holiday potluck, time and location TBA.

Dec 18 Meeting. Phytoactives: The Language of Plants. Dr. Ivette Guzman, Northern NM College plant biochemist.

Taos

Meetings are third Wednesdays at 7 p.m. in Coronado Hall at the Taos Convention Center. Please check the NPSNM website for updates and additional information on activities, or contact Sallie at taos800@aol.com or 575/776-0860.

Oct 16 Talk. Native Trees and Shrubs. Jack Carter, author, *Trees and Shrubs of New Mexico*. (El Taoseno Room)

Nov 6 Member Social and Election of 2014 Officers. (Los Angelitos Room)

NPSNM is a growing presence on Facebook, with well over 400 followers! You can find us at www.facebook.com/NPSNM. And you can visit the Las Cruces, El Paso, and Taos chapters, too; each has its own Facebook page.



A sight for sore desert eyes. San Lorenzo Canyon, annual meeting field trip. Photo: Carolyn Gressitt

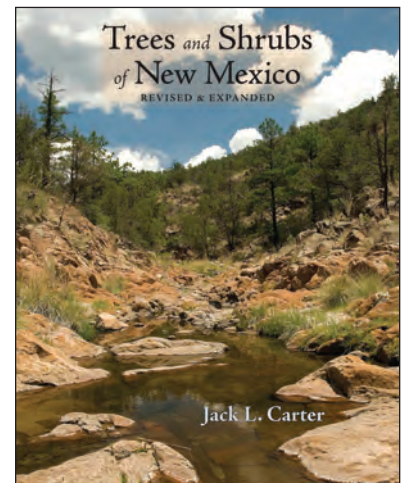
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Sedgucation II (continued from p. 5)

position in *Carex* may elicit a few raised eyebrows, a smirk, or a suppressed chuckle, correct interpretation of positional relationships between male and female flowers must be closely studied by students of the genus.

Identifying a *Carex* specimen to species can be as straightforward as solving a Sudoku puzzle or as complex as filling in all the blanks in the Sunday *NY Times* crossword puzzle. It is often a challenge, but an especially rewarding one when the vegetative and reproductive characters of a specimen one has stared at for hours gradually converge on the correct identity of the plant. If there is one message I leave you with, it is that *Carex* identification is possible if you are willing to invest some time into it. Just ask the 30 participants in the workshop—they'll tell you! ❖



Separate male (brown) and female (green) spikes of porcupine sedge (*Carex hystericina*).

Photo: Russ Kleinman

Top: Woolly Tidestromia (*Tidestromia lanuginosa*); bottom: Rio Grande greenthread (*Thelesperma megapotamicum*). Both are from the annual meeting field trip to San Lorenzo Canyon, a BLM recreation area near Socorro.

Photos: Carolyn Gressitt



Tidestromia lanuginosa (family Amaranthaceae) is a desert-dwelling prostrate plant with grayish leaves set off by red stems. The minute flowers are yellow, making for quite a pretty plant on the desert floor. This photo, a field macro of the flower and branched hairs, was taken by Russ Kleinman at City of Rocks State Park, August 30, 2009.

Photo courtesy Gilaflora.com, WNMU Dept. of Natural Sciences and the Dale A. Zimmerman Herbarium



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R Scott Carlson & Associates
Landscapes of the Urban Understory

R Scott Carlson
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The Awkward Relationship Between *Homo Sapiens* and Planet Earth

by Jack Carter, Gila Chapter

When you present lectures and workshops to a wide range of people, in which you encourage them to become familiar with the local flora, to plant native plants that require less water, and to plant and conserve those species that are important to insects and birds and other animal species, you hear a wide range of questions. The central theme of audience comments and questions centers on basic information concerning what species to plant, requirements for local plant growth and development, and where to acquire local plants. Either I have answers to these questions, or other members of the audience can provide solutions and sound suggestions. But with some regularity I am asked deeper, more challenging questions that demand more serious thought.

Some people seem to want to delve into my personal belief system. They want to know how I can be so concerned about the local native plant species when the entire earth's biological diversity is rapidly being destroyed. Recently I was asked one of these questions and it has stuck with me, not only because of its directness but also for the "take no prisoners" attitude of the questioner. It seemed to me he was asking, "What are you doing, beyond encouraging the planting of native trees, to conserve the long-term future of planet earth?" To say it another way: "What are the major issues in society to which we must attend if this earth is going to continue to be a place where large destructive mammals like *Homo sapiens* can survive?"

I recognized that I have two sets of ideas on which I operate. One is a list of recognizable, close-to-home environmental problems. It was at this level that I wrote *Trees and Shrubs of New Mexico* and directly encouraged the correction of problems we face right here in Grant County and New Mexico. At this level I am able to suggest we plant and care for local native plant species, protect the Gila National Forest, conserve water, reduce carbon dioxide, reduce erosion, and reach out to people of all ages to encourage them to protect the environment that surrounds them.

But as with most of you, I also hear another drummer and have been hearing a number of drummers for a good part of my life. I am not a self-made person. For more than 65 years, my teachers, professors, and environment have challenged me to read, study, and listen to a wide array of scholars and scientists who have made the case for protecting the only earth we have. Reading the works of such people as Henry David Thoreau, Paul Ehrlich, Edward O. Wilson, David Ehrenfeld, Garrett Hardin, Lester R. Brown, Eugene Odum, E. F. Schumacher, Peter Marshall, Carl Sagan, Aldo

Leopold, John Muir, John Passmore, William deBuys, and many others, has allowed me to develop a list of much larger concepts that I could not address in a single lecture or workshop. I have developed my own person and beliefs through these powerful thinkers, whom I almost consider personal friends. They have challenged me to attend to environmental issues not only close to home but far beyond, to recognize that every organism that makes up each ecosystem must be protected. And they have taught me that terms like *kindness*, *conservation*, *carrying capacity*, and *limits* must be understood by humankind first—before stocks, bonds, and derivatives can be of any value on a small, crowded, and mistreated planet.

What are some of these larger concepts that demand that we protect biodiversity, improve the quality of environmental education, and reduce the human population over planet earth? These concepts have been around for hundreds of years, but they have not become a reality for humankind. Here are just a few of my best examples.

1. Our present economic system is destroying the earth's natural environments and at the same time destroying the lives of millions of people. We must restructure our economic system to the point where it is compatible with the earth's limited capacities. Every person who identifies him or herself as an economist or has plans to run for a major political office must first be educated to the point of understanding basic ecology and earth science. I continue to be amazed when I hear some economists, and most elected government officials, who have never studied ecology, continue to make long-term decisions that place planet earth in terrible jeopardy. These uneducated citizens continue to draw a large part of the population along with them as they make horrible decisions concerning the future of planet earth and all living things. It is time to make "Earth First" much more than a bumper sticker. It must become a way of life if we are to protect all living things, including humankind.

2. Comprehending and living with climate change is just one more lesson we must come to understand and respect. We often hear people say, "We all talk about the weather, but we can't do anything about it." Not true! Humankind has done a great deal about the climate on planet earth and much of it is extremely bad for human health and the health of many other living organisms. Drought in the Midwest during the 1930s was real. It took human lives; people starved. I saw the clouds of dust that destroyed the central states, wreaking havoc on small communities and

Continued page 12

The Awkward Relationship (continued from p. 11)

the national economy. Drought in the Southwest is and will continue to destroy the lives and livelihoods of many living things. Los Angeles, Phoenix, or Albuquerque without water will take human lives, right along with thousands of plant and animal species. Ignorance, greed, and denial do not bode well for the future of the Southwest.

3. Stabilizing and reducing the human population *will* take place. Millions of *Homo sapiens* are simply not wanted from the time they are conceived until their death. People, especially 25–55-year-old males, become violent when shunned, discarded, and told by society that they are not wanted. For millions of people, global economics isn't working, and every day the problem becomes worse. Calling for kindness, praying, and expressing a caring attitude simply do not cure this very real problem. There are millions of babies not wanted at the time of conception and we have the knowledge to greatly reduce this situation. Whether Christians like it or not, they must come to recognize they do not get to require that a young woman have a baby that is not wanted at the time of conception. And if the Catholic church actually cares about the poor and hungry of the world they had best devote as much time to studying ecology as they do to studying their prayer books, and recognize it is their beliefs and behaviors that are responsible for producing a high percentage of the earth's starving people. The United States cannot maintain, feed, clothe, and provide shelter and health care for 300,000,000 people. Garrett Hardin was exactly correct when he said, as the U.S. population reached 150,000,000, that our population had gone beyond the point of no return. Globally, we are on a path to continuing to starve millions of people to death each year.

4. There are intricate relationships among plants, animals, photosynthesis, CO₂, oxygen, and respiration that humankind continues to overlook, ignore, or willfully misunderstand. Most people fail to conceptualize the connections that exist among the fundamental aspects of biology that allow the earth to persist in its basic form. I am afraid most adults would have serious difficulty writing a paragraph describing the connections among the terms listed above, processes that are so important to living systems. I am amazed at how little knowledge people have of the flora in relationship to the fauna that surrounds them, and the limited knowledge they have of the plants growing on their property. When it comes to selecting even a few native plants that are appropriate to the ecosystem in which they live, people seem to have no idea where to begin. Humankind fails to recognize the homeostasis, balance, and sharing that must go on among all living things over planet earth. It is as though the vast majority of people had never completed a single course in biology or ecology.

5. Eliminating landfills in favor of an economy that is totally recyclable is an idea poorly understood by many people, but in nature there is no need for a landfill. Nature depends on cycles to maintain life, and there are no systems—except those created by humankind—where raw materials go in and garbage comes out. As long as there are landfills, we continue to make the earth less and less inhabitable and at the same time drastically reduce natural resources at the expense of future generations. There is no excuse for landfills. Every single thing that goes into the landfill is recyclable. If we are serious about strengthening our economy, creating new jobs, and extending the life of humankind on earth, we will start today, cleaning up the mess we call landfills. Once this is understood, the price of every single item we purchase will include the cost of recycling.

6. The greatest gift we can give is to contribute our time and personal wealth to those conservation and environmental institutions that are most important to the long-term future of planet earth. There is also tremendous power in numbers when we join together with others to make our voices heard. Several years ago, while president of the NPSNM, I pulled together the available information on plant sales in one growing season from six chapters of the Society. These chapters sold and made available to their membership and to other friends and neighbors more than 1,300 native plants. These species went into the soil across the state and immediately started drawing carbon dioxide from the air and pumping oxygen back into the environment. That is progress on a small scale, but think of the potential of this many trees and shrubs planted each year, multiplied by 10, 20, or 100 years.

At the same time, at the August meeting of the Board of Directors it was reported that in just 4½ years the Carter Conservation Endowment Fund has gone over \$40,000, with hopes of going over \$50,000 this year. This means that presently and long into the future we will see an increase in funds available to support increases in education and basic research. Presently, from membership dues and gifts above dues, the NPSNM has approximately \$6,000–8,000 available each year to support proposal requests. With the continued contributions from our membership and friends, the future looks extremely bright.

Finally, the best advice I can give is that we all read, study, and think on these things, and then, in whatever way best fits our background and experiences, apply ourselves. ❖

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and would prefer a hard-copy, please notify
Cindy Roper at nativeplantsnm@gmail.com.**



More images from annual meeting field trips—
Above right: Green-leaf five-eyes (*Chamaesaraca coronopus*) in San Lorenzo Canyon. Photo: Carolyn Gressitt.
Left (top): Tufted sand verbena (*Abronia bigelovii*), a gypsophile, from White Mesa. Photo: John Wilson;
(center): *Euphorbia extipulata*, San Lorenzo Canyon. Photo: Carolyn Gressitt; **(bottom):** Dotted gayfeather (*Liatris punctata*), Sabino Canyon. Photo: Carolyn Gressitt.



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Membership in the NPSNM is open to anyone supporting our goals of promoting a greater appreciation of native plants and their environment and the preservation of endangered species. We encourage the use of suitable native plants in landscaping to preserve our state's unique character and as a water conservation measure. Members benefit from chapter meetings, field trips, publications, plant and seed exchanges, and educational forums. Members also qualify for membership in New Mexico Educators Federal Credit Union. Books dealing with plants, landscaping, and environmental issues are available at discount prices. The Society has also produced two New Mexico wildflower posters by artist Niki Threlkeld and a cactus poster designed by Lisa Mandelkern. These can be ordered from our poster chair (contact information listed on page 4).



New Mexico wildflower posters: \$8 (nonmembers, \$10)
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