
THE LAND REPORT

Summer 1986

Number 27



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On the Cover

This cover photograph of buffalo on the Maxwell Game Preserve appears in Prairie: Images of Ground and Sky, a book by Terry Evans, with introductory essays by Wes Jackson and Gregory Bateson, to be published by the Kansas University Press in October (\$19.95). Terry started photographing the prairie in 1978 when she assisted us with a research project, and we have been a major beneficiary of her creative focus on the prairie ever since. Prairie landscapes by Terry have graced other covers of The Land Report, and her exhibits have added to our Prairie Festivals. Now even more people can enjoy her work through Prairie Images. (See page 31 for more about this book.)

At The Land

Dana Jackson

Summertime

Although readers will receive this issue early in the fall, it is our summer report, so we call it the summer issue.

Our schedule was more relaxed this summer as we had no daily classes. Under a flex-time arrangement, students and staff could come as early as 7:00 A.M. or as late as 10:00 A.M. After checking the blackboard outside to see what jobs Danielle Carré had listed as priorities for the day, or what jobs were to be done in the garden, everyone went right to work. On rainy days, or times when it was too wet to work in the field, they pinned insects, wrote Land Report articles, or made a trip to the Kansas State University library. Learning didn't stop, however. Orville Bidwell spent a day at The Land showing us how to do soil profiles from the Prairie Festival soil cuts. Tom Mitchell Olds presented a seminar on his Ph.D. thesis work in plant population genetics at the University of Wisconsin. In August at our twice weekly meetings, the interns began giving seminars on sustainable (or nearly so) agricultural systems around the world, with each person choosing a topic to research and present.

There were frequent visitors this summer, and almost everyone gained experience in giving (continued on pg. 7)

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THE LAND INSTITUTE IS A NON-PROFIT
EDUCATIONAL-RESEARCH ORGANIZATION
DEVOTED TO SUSTAINABLE AGRICULTURE
AND STEWARDSHIP OF THE EARTH

BOARD OF DIRECTORS: Orville Bidwell, Karen Black, Richard Courter, Terry Evans, Bernd Foerster, Dana Jackson, Wes Jackson, Ivy Marsh, Gordon Maxwell, Jim Mayo, Dwight Platt, John Simpson

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Land Institute to Celebrate 10th Anniversary October 11, 1986

Ten years ago, in September 1976, Wes Jackson created The Land Institute, a non-profit organization devoted to a search for alternatives in agriculture, energy, shelter and waste management. Wes wanted to teach eight to ten students each semester and give them the opportunity to do both mental and physical work. In addition to classroom discussions of assigned readings, students did projects which demonstrated alternatives to conventional energy-intensive and materials-intensive technologies. The first groups were interested mostly in solar energy devices and local or recycled building materials, such as adobe blocks, tamped earth, and baled newspaper walls for shelters.

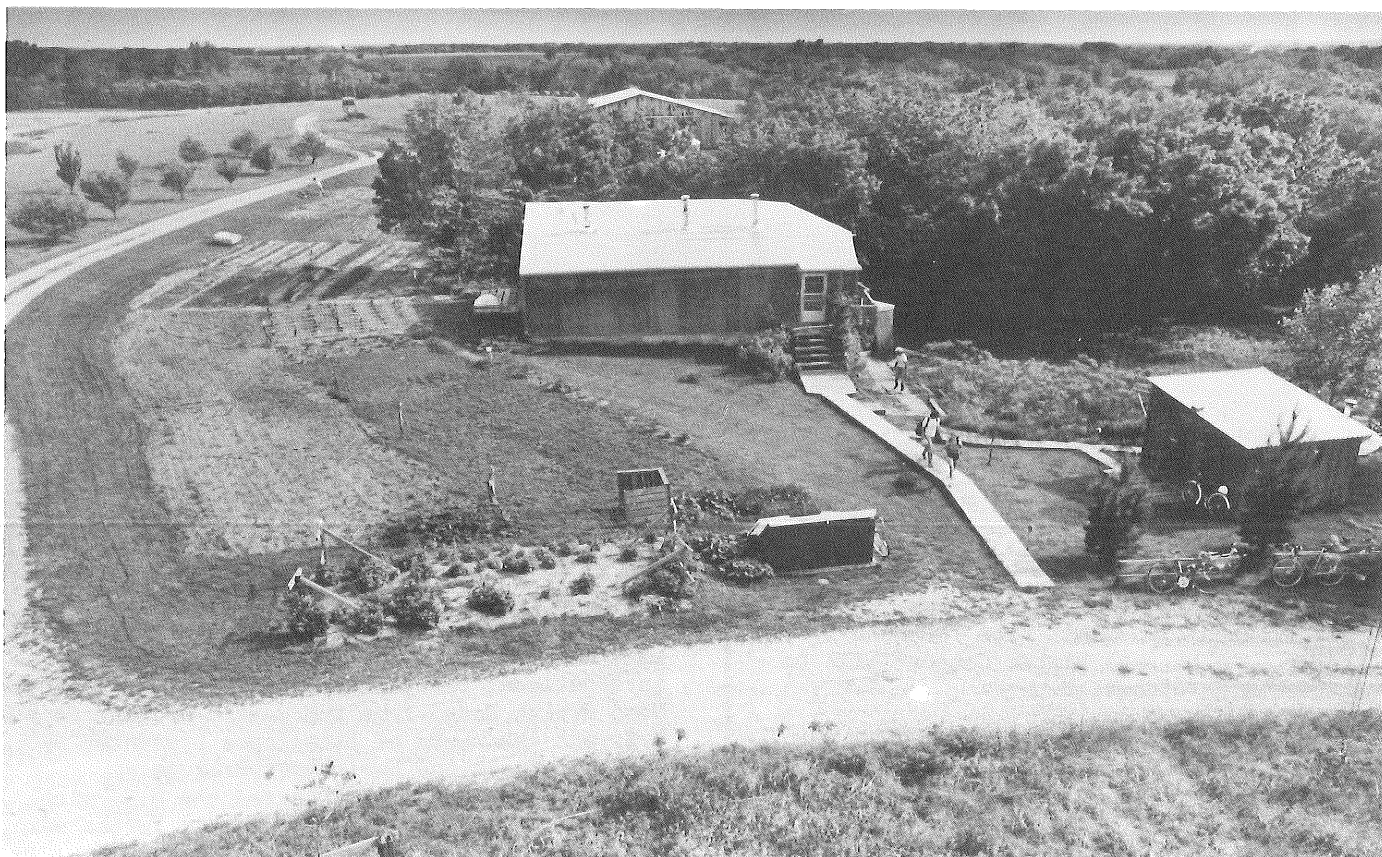
About six weeks into the very first semester, our classroom/shop building burned to the ground. For a time it seemed an unusually early death for a new non-profit organization. But support from Salina friends in the form of building materials and labor enabled us to begin a new building that winter. Donations of books and cash arrived in the mail to replace our lost library. The Board of Directors came up with funds to replace project materials lost in the fire. And most important, our eight students remained, even though we offered to return their

tuition payments and release them from obligation to The Land Institute.

Slowly a building arose, constructed with both new and used materials. The spring 1976 group met in the walk-in basement around a wood burning stove. The groups in the fall of 1977 used the new upstairs classroom in the midst of sawdust and carpentry tools, with chickens coming in and out of the open doors. Subsequent groups helped build the greenhouse, the sawshed, and turn a space into the student kitchen. The old shop is now an office, and the sawshed contains our drying ovens and seed cleaning equipment. It is an unusual building, to say the least, but it serves us fairly well. And, we have never had a mortgage on it.

Somewhere along the way we added the important word "sustainable" in front of "alternatives" in our statement of purpose. The program changed gradually as we turned our attention to the problem of soil erosion and agriculture and began a research program. Then in 1983 we began the 43 week term and started offering agricultural internships. Since then we have increased our professional research staff and started a post doctorate program.

A focus on agriculture does not mean that



The Land Institute, April, 1986

Photo by John Thelander

we are uninterested in environmental problems or peace and social justice concerns. The ideal of a sustainable society is central to agriculture and all of these issues. The everyday work of planting, hoeing, harvesting and taking data takes place amidst wide-ranging discussions stimulated by classroom work or individual reading. Publications and newsletters in our library provide students and visitors information on issues such as population and third world development, acid rain, the perils of the nuclear arms race, the loss of genetic seed stock, and the farm debt crisis. Conservation interests and social concerns of students and staff are often explored in articles they write for The Land Report. This year we have changed our statement of purpose to read: "devoted to sustainable agriculture and stewardship of the earth." This about covers it all!

Several Kansas colleges are celebrating their 100th anniversary this year, which may make a tenth anniversary at The Land seem insignificant. Yet it is an important milestone for us, and we intend to celebrate! We think that it is important to look back and appreciate what has been accomplished, and to look forward and make plans for the future.

Tenth Anniversary Celebration Program

Everyone is invited to take part in events at The Land on October 11, 1986. Come celebrate with us. And don't miss the evening concert!

2:00 - 4:00 p.m.

Open House for former students and Friends of The Land - a time to visit and look around. Visitors can see a special display of photographs taken at The Land over the last ten years which Terry Evans, arts associate, will arrange.

4:00 p.m. - 4:30

Dedication of the Wauhob Prairie.

5:00 p.m.

Buffet dinner (vegetarian) in the new barn followed by a short program. Karen Black, member of The Land Institute Board of Directors, is in charge of arrangements. Order tickets (\$6 each) from The Land by October 6. The Paul Winter Consort will be our guests at dinner.

8:00 p.m.

The Land Institute and the Smoky Hills Audubon Society proudly present the PAUL WINTER CONSORT IN CONCERT at the SALINA CENTRAL HIGH SCHOOL AUDITORIUM.

TICKETS FOR THE CONCERT will be sold in Salina at Carroll's Bookstore, (Midstate Mall), Edgington/Midwest Music (downtown), House of Sight and Sound (S. Santa Fe), Key Rexall Pharmacy (Southgate and Sunset Plaza locations). Mail order tickets from
Smoky Hills Audubon Society
Box 173
Salina, Kansas 67402-0173

(Please include self-addressed stamped envelope with ticket payment.)

Ticket Prices: in advance, \$7.00
At the door \$8.00

TICKETS FOR BOTH DINNER AND CONCERT can be purchased in advance from The Land Institute with one check for \$13/person. (\$15 if you want to make a special donation to help with costs of the anniversary events.) If you are attending the concert only, please order from the Smoky Hills Audubon Society.

The Paul Winter Consort

Paul Winter creates an original idiom of music that reflects his lifelong experience in jazz, symphonic and ethnic music. His renowned soprano sax sound, combined with the virtuosic and rhythmic music of the extraordinary Winter Consort, provides an inspiring and uplifting musical experience which has enthralled audiences in over 1000 performances throughout the U.S. and in more than 30 countries around the world.

Winter's dedication to environmental preservation and to peace are also reflected in the Consort's music, which includes the voice of wolf, whale and eagle in musical celebrations of the natural world: the sun, the ocean and its creatures, the Grand Canyon and Siberia's great Lake Baikal. The concerts offer a rich and beautifully moving musical adventure accessible to all.

As artists-in-residence at New York's Cathedral of St. John the Divine since 1980, the Consort has presented thirty special event programs, including the world premier of Missa Gaia/Earth Mass to capacity audiences. Paul Halley, organist at the Cathedral, is a member of the Consort.

Paul Winter's contributions to the environment and world peace through music have won international recognition, including the Joseph Wood Krutch Medal from the Humane Society of the U.S. and the Award of Excellence presented by the United Nations Environment Program.

In 1985 the Consort toured the U.S. with the celebrated Russian poet Yevgeny Yevtushenko, including performances in Carnegie Hall, Boston's Opera House and the United Nations.



Billboard listed the latest Paul Winter Consort recording, Canyon, as number four among top jazz albums in the second week of May. The Consort composed Canyon during several trips down the Colorado River and recorded it partly in the Cathedral of St. John the Divine. Paul Winter "wanted to make music of the canyon,

rather than just about it." John Wesley Powell, the first person to describe the experience of a river trip through the canyon, wrote in 1885: "The wonders of the Grand Canyon cannot be adequately represented in symbols of speech, not by speech itself...It is the land of music." Audiences can see and hear the "land of

music" in an hour long video recording of the Winter Consort rafting down the Colorado River and creating music of the Canyon. The Canyon video of the album in the making will be shown nationally on public television stations during the week of September 3-7.

The Salina concert will include selections from Winter's latest Living Music records, Canyon, Concert for the Earth, Sun Singer, Missia Gaia/Earth Mass, Callings, as well as favorites from his earlier albums, Icarus and Common Ground. This innovative repertoire, along with the Consort's famous improvisational magic, combine to create landmark concert experience.

Horizons Grant for Winter Concert

The Paul Winter Concert is funded in part by a grant to The Land Institute from the Horizons Program of the Salina Arts and Humanities Commission. This is a new program which gives financial support to organizations within the community to carry out arts and humanities projects.

Cooperating with the Commission is not a new experience. The Land Institute and the Salina Arts Commission jointly sponsored a program by photographer Terry Evans and painter Collette Bangert called "The Connection between Land and Line" in 1978. We also worked together to present Terry Evans with dancer Joan Stone and company in a program called "Images of Earth and Sky." The Land Institute recognizes the contribution such programs can make in working for a sustainable society.

Cooperative Projects with the Smoky Hills Audubon Society

The Land Institute and the Smoky Hills Audubon Society have a history of working together on joint projects. We co-sponsored the memorable lecture of E.F. Schumacher in March of 1977. Together we presented a public lecture by the distinguished ecologist Paul Sears in October of that same year. Books belonging to the Smoky Hills Audubon Society can be found in a special marked bookshelf in The Land Library. Audubon members have presented programs and led early birdwalks at our Prairie Festivals. The Land Institute Herbarium is a favorite place for an Audubon spring nature walk.

The Smoky Hills Audubon Society was organized in 1974, and many of the charter members became Friends of The Land when the Institute was started in 1976. Being the only environmental organization in the immediate area, Audubon has been the conscience of the community on issues impacting natural resources and conservation.

Staff Receives Computer Training

Friends of The Land contribute in various ways to our program. This past summer Carl Herrgesell made a generous donation of his time and professional background by spending three weeks training Land Institute staff to better use our computer capability.

Carl began by teaching a general computer literacy course and a Disk Operating System course to those with less computer experience. He gave a thorough course in Lotus 1-2-3 to the research staff, then presented several seminars on specific areas such as graphics, modeling and computer software options. Especially useful were the various individual tutorials and specific problem solving sessions.

Carl Herrgesell drove out to Kansas in the heat of July from his home in Rochester, New York, to do this special computer consulting, a generous act in itself. He slept on the floor of a staff person's house and took care of his own meals.

Carl earned a B.S. in physics from Case Western Reserve University, Cleveland, Ohio, in 1969. He was a VISTA volunteer with a Community Action Agency in Benton, Iowa. For eleven years he worked at Information Associates in Rochester, a top provider of business software to academic institutions, then joined a microcomputer consulting firm. Currently he divides his time between volunteer consulting and paid consulting.

The Land Institute, like many other non-profits, has entered the computer age. Most organizations purchase equipment and software for word processing and mailing list records, but researchers at The Land also need to record and analyze data from the experiments. Once having acquired the software to do this basic work, numerous additional neat options are available, for a price. With Carl's help, we have learned to use the software we already own much more effectively and can better assess what additional programs might be worthwhile for us to purchase in the future.



Peter Kulakow and Carl Herrgesell

(continued from pg. 2)

tours. Dr. Dick Newsome from Beloit College, spent several days doing research in our library.

A new face at The Land belonged to Mary Handley, a plant pathologist hired to do an inventory of diseases in the research plots.

Rob Fischer stayed busy repairing the lawn-mowers for groundskeeper Sara Jackson, but also found time to build a new light table for pasting up The Land Report and continued making improvements in the shop.

The number of people around The Land varied from week to week as each staff person and intern took a one week vacation between early June and Labor Day. The staff also spent time at conferences and meetings and presented papers about Land research. Jon Piper, Danielle Carré, Teresa Maurer and intern Mark Gernes attended the North American Prairie Conference. Jon Piper went to Syracuse, New York, for the International Congress of Ecology. Wes Jackson gave keynote addresses at the Permaculture Conference held at Evergreen State College in Washington and the International Federation of Organic Agriculture Movements (IFOAM) Conference in Santa Cruz, California. James Henson and Mark Gernes attended the IFOAM conference, then James, Teresa, Danielle, Peter Kulakow and new post doctorate Duncan Vaughn attended the short course on agroecology at Santa Cruz the following week. James and Teresa drove to Emmaus, Pennsylvania, to see the research on perennial grain crops being done at the Rodale Research Center. All the interns took in the Discussion Day and Farm Tour presented by the Small Farm Resources Project in Nebraska and then spent a day canoeing down the Niobrara River.

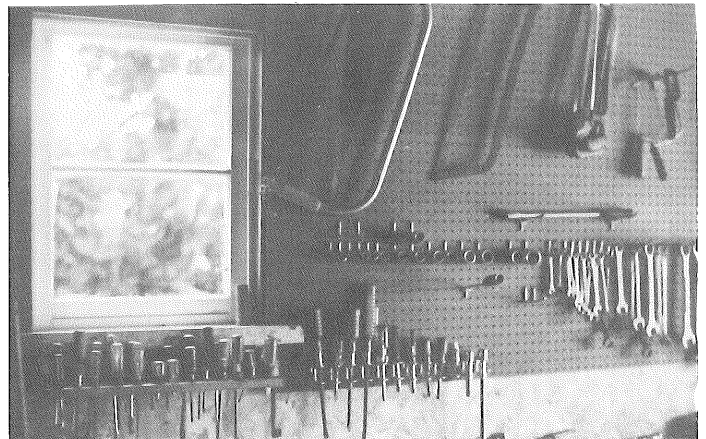
The mild summer, enhanced by a cool, rainy August, left its mark on our spirits. Summer 1986 was a successful growing season for both plants and people at The Land. Now we are ready for the challenge of the Fall session.



Melissa Sarlat moves irrigation hose, a job kept to a minimum this summer by well-spaced rains.

Agricultural Intern Program

The Land Institute is taking applications for ten internships in sustainable agriculture for the 43 week term beginning February 16 and ending December 18, 1987. Interns receive full tuition scholarships and stipends of \$93 a week. They find their own housing in Salina, prepare their own meals, and bicycle or carpool to The Land for the 9 A.M. to 5 P.M. day. The Land admits students of any race, color, national or ethnic origin. To receive a brochure or ask for further information, write or call Wes or Dana Jackson at The Land. (913) 823-5376.



Light, order and warmth in the new shop.

Prairie Festival 1986

Soil and Seeds: the Sources of Culture

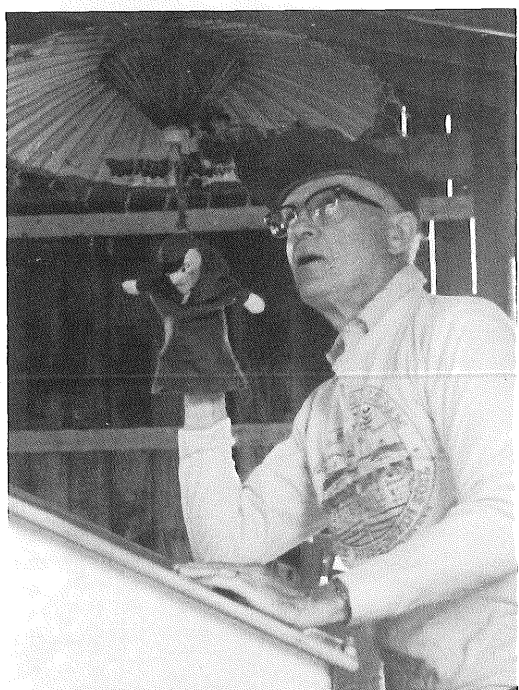
Patrick Bohlen



Before this year's Prairie Festival, the names and events on the schedule were just black letters on a page. As I look back, now that our wonderful celebration is over, the invitation to the 1986 Prairie Festival comes alive with the faces and voices that gathered here and created a lasting memory.

"Soils and Seeds: Sources of Culture" was our festival theme, and though one might think it a broad leap of the imagination to bestow soil with cultural meaning, Francis D. Hole, professor emeritus of soil science at the University of Wisconsin, dispelled any doubts we might have had about the deep relationships between soil and humanity.

The night before our festival began, those who had arrived early gathered around a bright, bonfire. Enjoying conversation and refreshments, and playing or listening to music by the fire, we remained late into the starlit night. As I sat there, near the fine folk musicians, I noticed among them an older man wearing a beret who stood up very straight as he danced his bow across the strings of his fiddle. This was the man who, on the following day, would bring the soil to life in a way that no one could have before imagined.



Francis D. Hole

Professor Hole's presentation was not a lecture but a drama and a song. His tools were not charts and diagrams, but puppets and props, a fiddle and a bow. His audience, however, came away with a feeling for and a knowledge of soil which textbooks could not have conveyed.

He began his musical comedy with what he called a musical bouquet—a collection of notes brought together on his fiddle for the crowd to enjoy. Then, with melodies that descended like roots and rose like shoots, he guided us through the living vibrations of the soil. He gave us a song for walking, a musical promenade; music of humus, silt, loam and clay; a song of earthworms, springtails and seeds; music of water and air; song of the wolf and mourning dove, and sounds of a skein of geese flying above. He then took on the identity of Terra Loam, "spokesloam" of the soil. Donning hand puppets, he enacted the drama of soil erosion. Erosion, a natural process, was portrayed as being as much a victim of humankind's assault as are the things ruined by erosion itself. Moving downhill, it has, in a sense, been pushed from behind and grossly accelerated by man's activities.

As a prelude to Professor Hole's inspirational music, another soil scientist and dear Friend of the Land, Professor Emeritus Orville Bidwell from Kansas State University, had taken us out to see the living soil.

With the help of interns, during our week of preparation, Orville carefully directed the excavation of two soil profiles. The two sites—one a native prairie soil never turned by the plow, and the other, a site which had previously been continuously tilled—were chosen to illustrate the effects of people's activities on the soil. The illustration was clear. The classic profile of three horizons showed up on the native site. The upper or A horizon was dark and rich with organic material. Beneath the A horizon was the moist, red B horizon—a silty clay loam. The C horizon or parent material lay below. At the plowed site, the upper organic layer was diminished. Between the friable tilled layer and the B horizon was a dry, compacted layer known as a hardpan. Years of heavy traffic over the soil had destroyed the integrity of its crumb structure and formed this dense layer which interferes with root growth and increases surface runoff. The dryness of this profile in comparison to the other site was evidence that the hardpan was blocking the free passage of water to lower horizons. Orville explained this

lucidly as he stood knee-deep in the soil pits. He passed around moistened bits of B horizon so we could all feel the texture of silty clay loam.

With an emphasis more on the fruits of the soil than on the soil itself, Gary Nabhan and Karen Reichhardt of Native Seeds Search in Arizona took us on a journey, beginning with the prehistoric and early historic worlds of native American farmers who have passed from hand to hand, generation to generation, the seeds that compose our native crop heritage. In their Saturday evening slide show, "Seeds: Genetic Resources and Cultural Treasures," Karen and Gary brought us briefly through the evolution of the flowering plants before turning to consider the development of early agriculture in America.

American crop heritage includes beans and corn and at least twenty other species of squashes, sunflowers, amaranths, chenopods, devil's claw, jack beans, and panic grass. Some of these crops have a variety of types which may be especially suited to the particular environments in which they evolved. They have been tended and cared for through the centuries in small mixed patches, the mosaic of diverse cultivation practices of early farmers. Unfortunately, the official policy in this country has been to neglect native seed sources, discourage native practices, and display a lack of respect for the contributions native folk sciences and traditional knowledge have made to botanical concepts and agricultural technology. Gary and Karen bemoan this neglect. They estimate that from one half to two thirds of the native landraces grown by American farmers at the time of Columbus have been lost, and that eighty of the five hundred wild relatives of native crops are now endangered.

Through their work at Native Seeds Search and through other grassroots seed-saving efforts, Gary and Karen hope that



ABOVE: Francis Hole makes music about soil for audience in the new barn.

BELOW LEFT: Orville Bidwell explains textural classification of soil.

BELOW: Jon Piper engages in discussion with Orville at the agricultural soil pit.

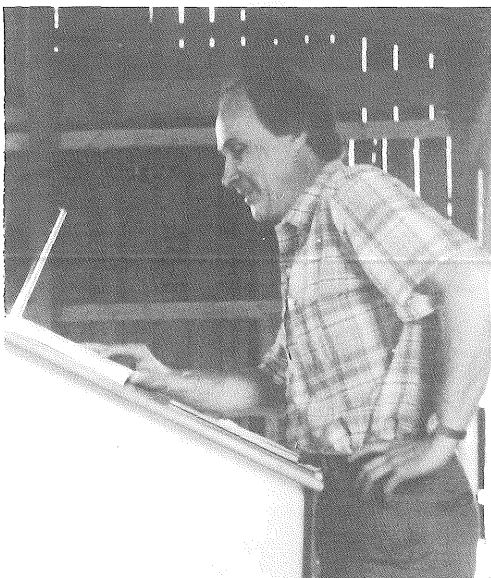


these seeds become a valued part of our culture once more. To achieve this they believe "we must nurture a set of values and a bag full of seeds that outlive our natural lives."

In the seed presentations on Sunday morning-- Gary's "The art of Saving Seeds" and Karen's "Developing a Bioregional Seed Exchange"--the Arizona botanists discussed preservation of native seed stock in some detail. We were very fortunate to have among us at this year's festival Kent Whealy, founder of Seed Savers' Exchange in Decorah, Iowa, who shared his own accumulated seed saving experience. Together, the seed saving experts discussed everything from the techniques of drying and storing seeds to the stages of development their seed saving exchanges have gone through.

Amid these themes of soils and seeds, the cultural flavor of our celebration was enhanced by poets, potters, musicians and humanities scholars. Through the work of their hands, the gift of song, by slide shows, photographs, dramatizations and poetry, they colorfully embellished the story of life on the plains.

Saturday afternoon Joe Paddock wove the images of his candid poetry into the themes of our festival. The Minnesota poet urged that we use the powerfully bonding metaphor of the land organism--a key image in his own writing--to break out of simplistic, numerical interpretations of what land or soil is and develop a more responsive understanding of reality. Both in and out of his poetry, he spoke of the same rooted themes--themes of return and a sense of place, cycles of birth and death and the recycling of bodies and energy in and on the land. In a lighter moment, he brought out laughter with his poem "Frogs," in which a gang of kids herded a frothing wave of thousands of frogs that swept hilariously through their quiet, unexpected town. Lamenting that "our way has made thieves of the wind and rain," in his poem



Joe Paddock



Seed art was a children's activity.

"Black Wind," and in another deeply moving poem about the culturally erosive potential of industrial agriculture, Joe dovetailed his concerns with ours and received a sympathetic round of applause.

The Kansas Committee for the Humanities sponsored programs by two Humanities scholars: Sally McNall, English instructor at the University of Kansas and Tom Isern, history professor at Emporia State University. Sally impersonated Willa Cather, the famous Nebraska novelist who wrote about the early days on the prairie. After her convincing performance, she stepped out of character to become Sally McNall again and answer questions about Willa Cather.



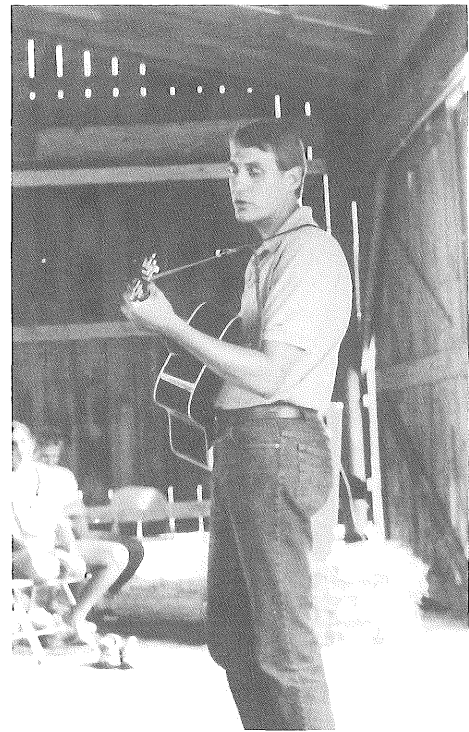
Sally McNall

Tom Isern began the final program on Sunday afternoon with "Folksongs of the Great Plains." His introductory song was "Kansas Boys," and though the lyrics were a comic parody of early Kansas settler life, they filled the quieted barn with a plaintive tone. Tracing Plains heritage through songs passed along by ordinary people, Tom also explained the history of the songs themselves. Of course, he concluded with "Home on the Range," and we all sang along.

The end of the music brought us to the final talk—"Stewardship of Soil Seeds and Culture," by Wes Jackson. Wes defined stewardship, discussed its relationship to ownership, and examined the criteria for sustainability: (1) using nature as our final backdrop, (2) cultivating different levels and types of perception to experience both smaller and larger realities, (3) adopting an ecological approach that has at least as much standing as the reductionistic approach, and (4) acknowledging the essentialness of community. Tying things together in his closing statements, Wes honored some of our previous performers when he said, "the current main source for the proper stewardship of soil, seeds and culture is in poems and music."

After Wes concluded, we busily gathered the chairs that had to be returned to the Presbyterian church the following morning. By the time we finished, nearly everyone had departed and we were left with only reverberating memories and a wish that it would have

gone on longer. My only regret was that I was unable to participate in every program and discussion at the Prairie Festival.



Tom Isern

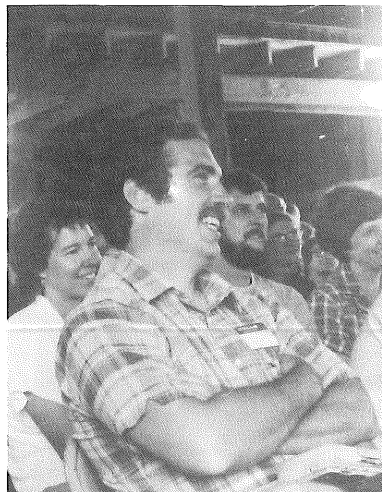
Seed Exchanges Began with Gardens

Patrick Bohlen

In the course of their discussion on how to establish a bioregional seed exchange, the seed saving celebrities of this year's Prairie Festival told us how their seed exchanges began.

Native Seed SEARCH got its start when Gary Nabhan was helping Papago Indians with vegetable gardening in southern Arizona. Some of these native farmers began to wonder where they could get seeds of the plant varieties their grand-parents had grown. The awakening interest of these farmers prompted Gary, with the diligent aid of Karen Reichhardt to begin a search for these native seeds. Eventually, to formalize their efforts, Gary and Karen and two other interested associates each contributed one hundred dollars toward incorporating their new organization-- Native Seeds SEARCH.

Far from the dry sands of Arizona, Kent Whealy, founder of Seed Savers Exchange in Iowa,



Kent Whealy enjoys Francis Hole's presentation. Directly behind him are Karen Reichhardt, Gary Nabhan and Joan Scott.

became dedicated to saving seeds not long after he and his wife Diane planted their first vegetable garden together. Diane's grandfather contributed some heirloom seeds that he had been growing for years. The following winter, her grandfather died, and Ken realized it was up to his wife and him to carry on the variety of seeds her grandfather had given them. Further encouraged by the writings of Drs. Garrison Wilkes and Jack Harlan, scientists who had been warning the public about genetic erosion for decades, Ken expanded his seed saving efforts.

From these modest beginnings, both the Seed Savers Exchange and Native Seeds SEARCH have expanded into thriving networks of growers, buyers and people concerned with the conservation of crop genetic diversity. In three years, Native Seeds SEARCH has grown from twenty-five to one thousand members. They

publish a quarterly newsletter and have a seed catalog that lists over two hundred varieties of mostly arid land crops. As shown in the Seed Savers Exchange trial garden in Decorah, Iowa, some of these arid land crops grow well even in the humid Midwest. Seed Savers Exchange itself, now in its tenth year, has grown into the largest heirloom seed saving operation in the country. They have built up a collection of nearly four thousand varieties and have over seven hundred gardeners in their grower's network. They put out an annual "Winter Yearbook" which lists the seeds available through their network and a "Harvest Edition" which is packed full of information on seed saving techniques and activities. Seed Savers Exchange also publishes "The Garden Seed Inventory," a catalog of all the non-hybrid and heirloom seed saving companies in the country and the seeds that they offer. To learn more about these organizations or join in their efforts by becoming a member, contact:

Seed Savers Exchange
Post Office Box 70
Decorah, Iowa 52101

Native Seeds SEARCH
3950 West New York
Tucson, Arizona 85745

Soil, Seeds and Settlers

Michael Collins

The photography of Solomon Butcher (1856-1927) was the subject of a lecture and slide presentation given by John Carter at the Prairie Festival. On the cover of the last issue of The Land Report, as well as on the invitation to the Prairie Festival, we featured Butcher's photographs provided by John Carter, curator of photographs at the Nebraska Historical Society. These photographs of Great Plains settlers and their homesteads comment on the history of settlement in Nebraska and the prairie lands and provoke thought on the lives these people led. The subject matter of the lecture is explored in greater depth in Carter's recently published book: Solomon D. Butcher: Photographing the American Dream (University of Nebraska).

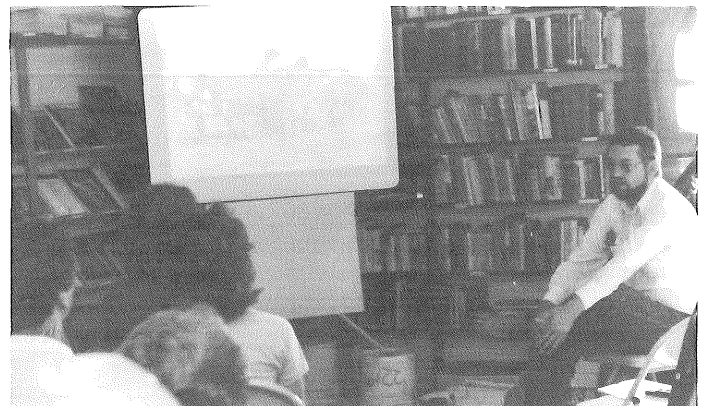
As a photographer Solomon D. Butcher captured images of the taming of the prairie by the new occidental settlers. With the opening of the west by the newly completed east-west railroad, people had the opportunity to acquire their own land under the provisions of the Homestead Act of 1862 and the bargaining off of railroad lands. In the spirit of the physiocrats of the day, Jefferson and Franklin in particular, there was a sense of the real value of land and a belief in the importance of the independent farmer. According to John Carter, these photographs embody this concept, for they "celebrate the nobility of life on the land."

The settlers arrived and faced the challenge of building the civilization they were accustomed to upon the "raw" earth. The photo-

graphs by Butcher describe, in the thousands of words a picture can tell, the new arrivals, their struggles and accomplishments. A typical story of a new settler began with a great awe of the land, the shattering experience of the vastness of the Great Plains. Coming in from the east—a long train ride, a long wagon ride, farther and farther from what was recognized as a fit environment for humankind—one was suddenly there. There was nothing to define one's own place in the wide open ocean of grass, no fence lines, trees or shelter areas. John Carter pointed out that it must have been terrifying for the settlers to be so alone, so far from human contact, knowing that this was where they were going to stay, to live.

At the Prairie Festival, Carter outlined the patterns of settlement created by the Great Plains pioneers, the steps they took to put order into their new surroundings, to "bring the horizon under control." They made divisions in the landscape, the most obvious being the separation of inside and outside, stemming from their need for shelter from the elements. The sod house was an important feature of Nebraska. It was the first structure to be built, carved from the earth, usually by a community effort. Because the sod houses were small, and it was difficult to work inside the dark, closed interior, the settlers stored many possessions outside. In Butcher's photographs we see large collections of objects surrounding the house. This first division in the landscape, inside from outside, was certainly much less marked than it is today.

Other divisions of the land came as the settlers defined areas of use and then expanded on them. Rectilinear impressions were made upon the original curves of the land. They planted crops in straight lines within square blocks and built rectilinear sheds for animals. Eventually the fields, which at first were planted right up to the doorstep, were moved back to give room for yard space. They cut paths into the ground and painstakingly planted trees around their homes to break the wind and provide shade and beauty. This demarcation of the landscape is apparent in an overview of Butcher's photographs.



John Carter shows slides of Butcher's work.

This photo by Solomon Butcher was taken in East Custer County in 1887. It was on the cover of the Spring 1986 Land Report.



In 1886, Butcher began to document the history of Nebraska, making 1500 photographs over the next seven years. In 1901, a collection of his photographs were published: The Pioneer History of Custer County and Short Sketches of Early Days in Nebraska. The first edition of 1000 copies were sold by the end of the first year.

With his concern for the historical, Butcher was unlike most other photographers during the "dawn of photography." These others were primarily portraitists whose work usually was just a reflection of the wealth of those people who could afford to be photographed. According to John Carter, Butcher was not noted for his technical ability and "aesthetics was not a central concern for him." Rather, in his historical capacity, Butcher was "interested more in the settler's way of life than in the settler. He tended to step back and shoot whole homesteads." Many of the homestead photographs show the family, their pets and livestock, their hired help and their possessions all in view in front of the main house or somewhere where the whole spread was visible. Most of his work contained humans; there were few landscape shots. Being in awe of photography, a new phenomenon, his subjects took the matter very seriously. They were dressed in their Sunday best, looking sober and attentive to the camera. "What his pictures really deal with are states of existences," Carter said. It was less the people in the photographs and who they were, but it was about how they lived and in what context. Butcher's work came to be part of history in the

making, where he created history by creating the references which were to be used by future generations in forming conceptions of the past.

Carter's Prairie Festival lecture made me realize how important it is to know about those who came before us and feel a part of the "wheel of life." The imprint of humankind on the land is intriguing because it suggests connections to the past and to a heritage. Butcher's photographs showed us the settlers who came to carve a civilization, the one they knew, upon the Great Plains. It is easy to draw back from an embrace of their success and the romantic concept of the pioneer, when faced with some of the negative aspects of their settlement: the supplanting of the indigenous Indian cultures; the plowing up of native prairies and subsequent destruction of ecological cycles; the domination of certain food crops and the decrease of natural plant diversity; the beginning of an industrial basis to agriculture (we see some of the first steam driven tractors in some of Butcher's photos); and a general spirit of aggression associated with the conquering of a land. One gets the feeling that these settlers were not interested in integrating their lifestyle with the nature of the place. They were looking to force upon the land what they had known before. When I sit back to consider this, I feel that perhaps it was the only choice they really had. These matters aside, I have a great respect for the bravery of the settlers and their work to create a new human environment. It was a pleasure to hear John Carter's lecture at the Prairie Festival and learn about the settlers through Solomon Butcher's photographs.

----- Alternatives in Agriculture -----

Midsummer Research Report

Teresa Maurer

If we had to choose symbols for our spring and early summer research work, they would probably be peat pots, hoes and hands grubby from weeding. Although we have spent much of our time transplanting plants and establishing new experimental plots (hence the peat pots), we have also concentrated on maintaining and experimenting with the extensive plantings done in 1985.

As our research program matures, we are building upon and improving the experimental designs of previous seasons. In the winter months before the interns arrived, Jon Piper, James Henson, Judy Soule, Danielle Carre, Dana Price and Wes Jackson reviewed the 1985 season in detail and drafted 1986 research project descriptions. These included methods, suggested analyses and estimated hours of labor needed.

From their work the following 1986 research themes emerged: 1) continued documentation of yields from long term experiments 2) determination of ecological requirements for germination and propagation 3) observation of the effects of breeding system, plant characteristics and density on yield 4) expansion of the perennial sorghum breeding program 5) composition and responses of plant species in mixtures and in native prairie 6) examination of insects and plant pathogens present in experimental plots and native prairie. The species we are concentrating on are Senna marilandica (wild senna) Leguminosae, Desmanthus illinoensis (Illinois bundleflower) Leguminosae, Leymus racemosus Gramineae, Tripsacum dactyloides (eastern gamagrass) Gramineae and Helianthus maximiliani (Maximilian sunflower) Compositae.

The deep yellow flowers of Senna marilandica began blooming in late June and green pods appeared in mid-July. These wild senna plots, supervised by intern Melissa Sarlat, represent our longest running yield study and we will collect seed for the fifth consecutive year. The senna results are providing information on long term patterns of high seed yield by a herbaceous perennials, which is necessary to help us design a sustainable polyculture. The data should also help to fill gaps in the ecological literature on seed production by a native perennial.

Our search continues for the best ways to germinate, establish and grow the five species of current interest. In the early spring Rob Peterson and Dana Price refrigerated, scratched, and soaked seeds, trying to coax them to a high percentage of germination under field or greenhouse conditions. We varied the planting times for seeds in the field plot, so that a visitor

to the plot can now see cohorts of plants of different ages and sizes. James Henson and Patrick Bohlen headed the teams which transplanted eastern gamagrass seedlings from greenhouse peat pots to the field in April and May. Among these plants are some with the pistil mutant trait which raises the female to male flowering ratio and offers potential for increasing seed yield five fold. The resulting 4,000 new plants have been nursed along with many hands, hoes and aching backs to help them overcome the weeds and drying Kansas winds. In two months we have seen them grow from struggling seedlings with two leaves, to half meter tall leafy clumps. We are also harvesting eastern gamagrass seed from previous plantings.

Unfortunately, our new Leymus plantings have not been as successful. Spring-planted seedlings have shown variable growth and patchy establishment, with some dying, some remaining small, and a few growing well. However, Brad Burritt was able to take the first harvest from the 1985 plantings and has recently been threshing and measuring seed and rachis traits.

As the pale filamentous flowers appeared in June, Patrick Bohlen began a new study on the pollination system of Illinois bundleflower, using tiny mesh bags on individual flowers to determine whether these plants self-pollinate. Michael Collins, Mark Gernes, Dennis Rinehart and Melissa Sarlat are also measuring height, stem diameter, biomass, stem and flower numbers and other plant attributes on this and other study species. These will be correlated with density and yield data and may allow us to define desirable plant characteristics and predict yield.

Mark Gernes and Michael Collins are collecting data on density effects on yield for the second year on both the sunflower and Illinois bundleflower plots. We'd like to know if the



Brad Burritt threshing Leymus.



Dennis Rinehart and Peter Kulakow examine dwarf sorghum breeding stock.

optimal spacing for high yield in second year plants is similar to that found for first year plants. In the sunflower plots, Mark is also using different cultivation methods to reduce crowding from the numerous stems produced by second year plants.

Another phase in the effort to combine winter-hardy perennialism from Johnsongrass and desirable yield characters from cultivated sorghum has been reached with the 1986 season. Dennis Rinehart is evaluating individual plants from Johnsongrass-sorghum crosses for winter survival and agronomic traits. James Henson and Peter Kulakow have also been adding to the diversity of our sorghum and Johnsongrass breeding stock with help from Paula Bramel-Cox at Kansas State University and other cooperative researchers. New sorghum material from New Mexico State University has been received and planted, and collection of Johnsongrass rhizomes from cooler and drier counties will give us more opportunity to select for winter hardiness and drought resistance in our combinations.

Turning now from research on individual species to our studies of plant species in combination, we can also report some progress.

Work on effects of Maximilian sunflower on weeds is now in its third season. Mark Gernes is assessing the amount and types of weeds that occur with different densities of this perennial plant. In previous years, total dry weight of weeds declined as sunflower density increased and we would like to see if this holds true for a third year. An interesting observation is that the dominant weed species in the plot have changed for each year of the study and seem to follow patterns expected if weed succession is occurring.

We are continuing observations on sunflower-eastern gamagrass-white clover mixtures which were planted in 1984. Mark Slater will make estimates of relative abundances of weed and test species near the end of the season. Another combination, the "complete ecosystem", was planted in 1985 in alternating rows

of Illinois bundleflower, Leymus and Maximilian sunflower. Teresa Maurer and Mark Gernes are observing phenology and growth of all three species and have done some experimental cutting of the tall sunflowers to see if added light will counter poor Leymus establishment and growth. This preliminary study has given us a glimpse of the challenges we face in growing these three species together, especially with respect to time of planting and spatial pattern. We hope to implement these ideas in new plantings next season.

Finally, we hope to receive insight on the role of other ecosystem components in our perennial polyculture by studying insects, pathogens and prairie vegetation. Mark Slater is making biweekly insect collections from the research plots which he hopes to compare with 1985 data. He has also initiated new collections from our nearly 100 acres of native prairie. Danielle Carre and Mary Handley have devised a system for quantifying fungal damage to Illinois bundleflower plants and identification of pathogens in Leymus plantings and other plots is underway. At intervals, prairie vegetation is collected, categorized as legume, composite, grass or other, then dried and weighed. Jon Piper and Teresa Maurer hope to document seasonal patterns in proportions and total biomass of plants in these categories. As we consider the prairie as a model system for a polyculture, these patterns may provide clues to optimal mixtures of legumes, grasses and composites in an agroecosystem.

The 1986 research season has been extremely busy. We look forward to reporting our results in the 1986 Land Report Research Supplement.



Mark Slater collecting insects in the plots.

You can obtain The Land Report Research Supplement with results of the 1985 experiments through the mail upon request. Cost, \$1.75.

Land Folk Visit Small Farms Resources Project

Patrick Bohlen

Land interns and staff travelled through the heart of Nebraska corn country to attend a discussion day and farm tour sponsored by the Center for Rural Affairs (CRA), in Hartington Nebraska on July 19. The focus of the day's events was "Creating a Research Agenda for the Revitalization of Rural America."

The corn-covered landscape through which we drove gave the impression that there was an abundance of water in the region. Northeast Nebraska receives about 27 inches of rainfall, but many farmers depend upon the profuse center pivot irrigation systems, which draw their water from the abundant underground store of the Ogallala aquifer, to water their corn. Puddles we saw at the ends of many fields were signs of a prodigal use of this underground store. The immense irrigation frameworks not only threaten the aquifer--which is being depleted in some areas faster than it is being recharged--but also disrupt ecological stability and further intensify an already overcapitalized agriculture in the region.

Recognizing the sources of farm productivity and working to preserve and sustain these sources, the CRA has made water practices on the farm one of its central concerns. In their Small Farm Resources Project (SFRP) they work with 23 local farmers to promote dryland farming practices appropriate to the region. Rather than provide a panacean prescription for the farmers' woes, the SFRP works with resourceful farmers who are pursuing or willing to pursue diverse paths toward ecologically sound agriculture. These paths necessarily emphasize reduction of expensive inputs and an augmentation of internal farm cycles. They include, among other things, an emphasis on mixed crop/livestock operations; soil building through composting, green manures, and crop rotation; and the use of nitrogen-fixing legumes to build soil fertility. We were able to see three of these cooperating farms on the afternoon tour.

The morning program was held at the VFW Hall in Hartington. In an introduction to the day's events, Ron Krupicka, director of the SFRP, discussed the current status and some outcomes of their work with small farmers. One of the most noteworthy things he mentioned was the significant effect a farmer's change in attitude can have on the workings of the farm. To illustrate this point, Ron told us about a farmer cooperating in the Small Farm Energy Project who had installed a solar collector on his farm. In a comparison between the use of electricity before and after installing the solar unit, the SFRP found that 6% of on-farm energy savings came from the unit itself. Around 25% came from other explicit conservation measures, and a full 69% of the energy saved was attributable to the farmer's change in attitude about energy use. The message was clearly that people, not simply new technologies, are the greatest source for con-

servation and change.

The first speaker of the morning was Dr. James Power, a research soil scientist who was to give a "Report on the USDA-ARS Planning Conference on Sustainable Agriculture." Though the research results he presented on optimal water-holding capacity for agricultural soils and the effects of different tillage practices on this capacity and on soil fertility were interesting and of practical importance, neither that work, nor his summary of the USDA proposals jibed well with what we understand as the research needs for sustainable agriculture.

The morning's other speakers--three farmers from different Plains states and a graduate student from the University of Wisconsin--urged that the kinds of practices Ron had discussed earlier be verified and more strongly endorsed by agricultural researchers and policy-makers. Although each speaker agreed that small farming operations must be profitable if they are to be viable, one of them, Ed Reznicek of the Kansas Rural Center, cautioned farmers against equating value with "cash" value and not giving enough consideration to "biological" value on the farm.

The afternoon tours were to economically viable farms whose farmers had not forgone biological value to make their operations profitable. Although these farmers were not rich, their farms comprised a wealth of conserving practices for which all of them had won conservation awards. The SFRP encourages each farmer to develop systems based on the special character of his farm. Each farm we visited reflected the resourcefulness of the person or persons running it. The farmers emphasized the importance of being able to do their own welding and machine shop work, and they talked about doing their own meat cutting and growing vegetables and fruits in gardens. Coupled with their quest for increased self-sufficiency was each farmer's readiness to employ innovations that would reduce inputs and enhance the farm environment.

Janet and Glen Olson's 520 acre farm features contour strip cropping, shelterbelts and wildlife habitats. They grow a variety of crops in rotation and are experimenting with rye as a green manure and for weed control.

The two other farms we visited--the 440 acre Weubben farm near Wynot, Nebraska, and the DeBlauw 440 acre farm near Bow Valley--both have time-controlled grazing cells for their dairy herds, and both compost the cow manure. Theodor and Edgar Weubben are gradually turning their farm over to sons Terry and Don. They have planted windbreaks of small junipers along their terraces, and Terry demonstrated a unique cultivator he had designed and built to cultivate around the young trees. The Weubbens were also in the process of establishing wildlife habitat. Marvin DeBlauw, who farms with his mother Irene, has a confinement hog operation in addition to a dairy herd. He uses a small

instrument called a refractometer to improve the timing of his hay harvests. We got a chance to wander into his corn field to look for seedlings of alfalfa, sweet clover and hairy vetch which he had planted with an overseeding attachment on his cultivator at last cultivation.

As part of their three year Water Policy and Practices Project, the SFRP and cooperating farmers are focusing on water use. But the farms we visited clearly showed that the proper use of water is but a single feature of well-run small farm. The Water Project itself is only a part of the work of the Center for Rural Affairs to promote ecologically sound agriculture through advocacy, research, and education.

Interest in Agroecology Growing

Jon Piper

In August, I attended the Fourth International Congress of Ecology, which was held in Syracuse, New York. Because this congress incorporated both the Ecological Society of America and the International Association for Ecology, it hosted an international list of participants and addressed many issues of global importance. Of particular interest was a greater emphasis on agroecology than has occurred in previous meetings of the ESA. For example, in 1983 only a poster session was devoted to the subject. There were no agroecological sessions in 1984, and in 1985 there were two sessions on agroecosystems. This year, in contrast, there were nine sessions or symposia scheduled with such titles as "Ecological Contributions to Sustainable Agriculture in Post-Industrial Societies," "Biological Diversity and the Impact of International Economic Development Projects in the Humid Tropics," and "Ecological Management of Common Property Resources."

In addition to the wealth of information I gathered, I met people working overseas on issues important to The Land Institute. Interest among participants was sufficient to generate a fledgling international organization for ecological agriculture, the first task of which is to produce a mailing list of researchers.

A call for greater involvement of ecologists in applied projects, public education and legislative influence ran thematically throughout the conference. As natural biotic communities comprise interdependent components, so too we must seek to integrate ecology with agriculture so that their respective societies may approach earth stewardship in a spirit of cohesion and cooperation. It is gratifying that the various scientific communities are beginning to recognize the need for an integrative approach to the issues of economic development, environmental preservation, and health of human societies.

Soil and Nuclear Power Plants

Dana Jackson

We still do not know the full impact of the Chernobyl nuclear power plant accident. Official announcements by the Soviet government have gradually admitted that the loss of lives and health will turn out to be much more than first estimated. Neighboring nations have discovered that the radiation pollution in their countries is worse than they thought.

One dire consequence slowly being realized is the radioactive contamination of livestock, crops and soil. CBS TV news reported that the Laplanders in Norway cannot eat or sell reindeer meat, nor is sheep a safe meat in that country. Soon after the accident, officials in several European nations declared many vegetables to be too radioactive for consumption. Recent news stories report that the Russians may have to bulldoze off four inches of topsoil in sections of a 1000 square mile area and put it in a waste dump. In some forested areas they may burn down the trees so the soil can be removed. They cannot allow the radioactivity to drain into aquifers or watersheds. There must be thousands more square miles contaminated to a lesser degree, but still ruined for crop production or livestock grazing for an undetermined time.

After the Chernobyl disaster, the nuclear industry hastened to assure the American public that it could not happen here. But the Nuclear Regulatory Commission (NRC) admitted on November 1, 1982 before the House Sub-committee on Oversight Investigation that the chance of a major reactor accident occurring in the U.S. by the turn of the century is about 50:50.¹ Energy expert Amory Lovins believes a nuclear accident is quite possible in the U.S.

The tragedy at Chernobyl was not a surprise. The release of roughly 2,000 Hiroshima bombs' worth of fall-out from a nuclear meltdown was just the kind of event we've long sought to prevent. A broadly similar accident could occur in any U.S. reactor, with or without containments--which are meant to contain small accidents, not big ones...any technology in which "no act of God can be permitted" is unsafe in the hands of fallible people and imperfect institutions.²

The United States certainly has its share of fallible people and imperfect institutions.

Kansas has a nuclear power plant just fifty miles south of the state capital in a rich agricultural valley. The NRC lists the Wolf Creek Plant among the top nine most "worrisome" in terms of operations and safety records of the 100 or so nuclear plants in the country. The NRC has estimated that a major accident at Wolf Creek would result in 1,000 early deaths, 3,000 early injuries, 3,000 more eventual cancer-

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Mark Gernes and Dennis Rinehart picking lettuce.

Photo by John Thelander.

Reflections on the Organic Garden at The Land

Michael Collins

Many of my days begin with a quick tour of the garden. I'm looking for the latest developments (what's ripe, what's being eaten) and for what needs to be done. The community garden is an important aspect of being an intern at the Land Institute. Although I have a special responsibility to look after the garden, everybody lends an enthusiastic hand with the work. And everybody helps eat the produce. Each day the interns have big group lunches, feasting on potatoes and whatever else is in season.

Never having had much experience with a garden before, I have learned a great deal this season. This garden plot has a legacy, fourteen years of productive service. The black, humus rich soil was given a good shot of dairy manure in January. At first we believed the fertilizer to be too strong; it seemed to be burning up the kohlrabi and made the peas vulnerable to frost. But we learned that it didn't have a very serious effect. March came in like a lamb, and an early spring meant an early first planting -- March 5 for lettuce, spinach, onions, carrots, beets and other cold-resistant crops in the beds, which are rebuilt each year. As is traditional here, we planted seed potatoes on St. Patrick's Day. It was a windy, rain-threatening day, and the potatoes were almost blown out of their holes before we could get the soil piled on top of them. On the equinox we started some seeds inside: tomatoes, peppers and eggplants. By mid May we had planted out the entire soccer-field sized plot near the building, and a second plot in an area formerly used for research.

We had good crops this year, primarily because of well-spaced rains. It seemed as if something was always available from the garden once the early crops came on. According to Dana the broccoli was the best yet. We harvested sixty luxuriant heads and many side shoots before it became strong-tasting and was attacked by harlequin bugs. Then we tore the plants up. The corn harvest went off like clockwork. We had two plots, each containing a section of Early Sunglow and one of Burpee's Sugar Sweet. First we pulled the earlies and later the sweets; then, a second batch of each, giving us an almost continuous, month-long corn harvest. We partially attribute the good yield of the big potato patch to the late arrival of the potato bugs. They didn't attack until the tubers were safely tucked underground. So they just ineffectively crowd around the last stubbles of green-brown that are left. There is a beautiful arrangement of tied onions hanging in the barn, whites, yellows and the deepest purple, delectable to look upon. We have had enough garlic to flavor our food so far, but unfortunately there wasn't enough garlic to store. Lots of fresh basil was available for Italian tomato sauce, drying and for pesto, the supreme green paste. Eggplants are in large supply, but the green peppers are coming along too slowly, lots of tiny peppers looking as if they're in suspended animation. We actually got zucchini, even after days of battling the stinky squash bugs we all hate so vehemently. Each time I pick a zucchini and see all the squash bugs running

rampant, I think, "This is it; we won't get anymore." Then the next day there are flowers, and the plant pulls through for awhile longer. A nice crop of butternut squash barely survived the onslaught of squash bugs, but the fruits yellowed up in the nick of time.

And the best harvest of all - the strawberries and melons! This was the second year for the Sure-crop variety of strawberries. Wonderful days in strawberry heaven! Oh yes, the glorious melons! Admidst squeals of delight, Mark Slater practically swallowed a watermelon whole. We have fairly well gorged ourselves on delicious cantaloupes and watermelons.

With some crops there was not only enough, but a good abundance, even a surplus. Though we did our best to eat them all, bloated, white belly-up cucumbers rotted in the sun, the castaways from the wheelbarrow loads of cuke logs carted off to the fridge. And those prolific string beans never did get picked throughly, though we did freeze and pickle. There also was a crop of snow peas not completely harvested.

The least success we had this year was in establishing three hardy Kiwi plants we ordered from Henry Field's. Despite a good amount of soil loosening, water and fertilizer, they didn't take off. Instead, the leaves gradually turned black, and the kiwis wilted one by one after being put in the ground. There may have been a few other problems, but overall I think this was an excellent growing year, and all of us really participated in the success of the garden.

Though summer is waning, the red-ripe tomatoes are at their peak, and lima beans, okra and a second planting of green beans and zuchinni are coming on. We have sweet potatoes, leeks and parsnips to look forward to this fall.

In the morning, in the monumental calm of a new day, I feel the peacefulness in this kind of work. I guess those who really know gardening know of its tranquility at times. It really



Enjoying sweet corn for lunch: Teresa Maurer, Jon Piper, Rob Fischer, Dennis Rinehart, Dana Price and Patrick Bohlen.

brings to mind what I once read in Voltaire's Candide. After much trial and tribulation. Candide, the hero of the tale, arrives on a farm in Turkey with the group of people who have attached themselves to him throughout his misadventures. In the conclusion of the tale, this community struggles with a discussion about epistemology. They have lived life between two extremes, either "the depths of boredom or in the lethargy of despair." Most of the time they sit idly on their unproductive farm until one day when they meet a contented farmer who offers them a banquet of rich food. At first they think he is a great and rich man, but soon discover that his only riches are his family, work, contentment and his twenty acre farm. The farmer tells them, "I cultivate them with my children, and work keeps at bay three great evils: boredom, vice and need." They then discover a peacefulness of living when they integrate themselves into the cycles of nature in an agrarian lifestyle instead of clashing with the chaotic cycle of the human civilization.

"I also know," said Candide, "that we should cultivate our garden."

"You are right," said Pangloss, "for when man was placed in the garden of Eden, he was placed there ut operatum eum, to dress it and to keep it; which proves that man was not born for idleness."

"Set us to work without theorizing," said Martin, "tis the only way to make life endurable. We must all cultivate our gardens."

Murder on a Summer Evening

Weeden Nichols

I pulled the sunflowers from the asparagus beds this evening.

Several four and five footers and a few eight and ten foot helianthus annuus patriarchs which had presided briefly in coarse, acrid dignity.

Plants which are guilty of allelopathy (perhaps even aggravated allelopathy) could not be good for the asparagus.

They gripped the soil desperately, but I completed the job.

Later, as I stacked wood behind the nearby garage, the cluster of ten-foot sunflowers behind the garage and around the corner from the asparagus bed leaned together and whispered, "Yes, that's the one. He has just committed herbicide."

Were the First Farmers Gardeners?

Mary Handley

Mythology tells us that agriculture is a gift from the gods. It almost always appears in conjunction with other aspects of civilization: household arts, religious rituals, and formal laws.¹ It is very unlikely that any culture decided to shift from a hunting-gathering lifestyle to one dependent on farming all at once; more likely it was a very gradual change which took decades or centuries. We have very little evidence for the sequence of events which led from gathering to farming in any region, since the shift occurred in Stone Age cultures which left no written records. Still, by combining bits of knowledge from scientific studies in several fields, and some educated guesses, a story emerges which gives insight into the process of domestication. Since we are all dependent on agriculture, it seems pertinent to know how it began. Debunking the ancient myth that agriculture was a gift from the gods, or the modern myths that farming is the greatest idea ever to come along and that it swept the world as soon as it was discovered, may help us at the Land to change modern agriculture to a more sustainable method of getting food.

Investigating the origins of agriculture is multi-disciplinary work. Archaeology, palaeoecology (the study of the ecology and environment in ancient times), ethnology (the study of human cultures), ethnobotany (the study of plant uses and lore of a culture), palaeobotany (the study of ancient and fossil plants), and botany have each contributed to our understanding of early agriculture and agriculturists. For the Far East, much of the work of synthesizing an overall picture from evidence in many scientific fields has been done by Dr. Kwang Chih Chang. The information I am reporting here is based on a recent article he published in *Antiquity*, an archaeology journal.² The story of the development of farming in the Far East is a model of what may have occurred in many regions of the world.

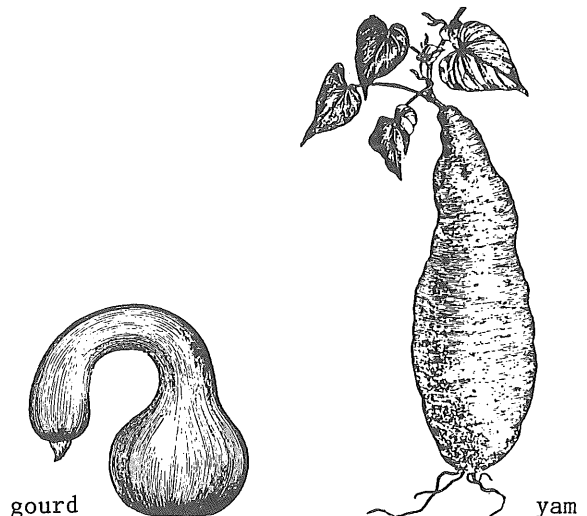
Paleolithic cultures were present in the Far East in 50,000 BC as documented by their remains in archaeological digs. This corresponds to the time of maximum glacier advance in this area, identified by studying pollen deposits. The people lived in small, widely separated clusters and relied on fish, wild animals, and wild plants for subsistence. Following the receding of the glaciers, the climate warmed, and a period of abundant vegetation and moisture occurred, reaching a peak at about 14,000 BC. As the climate changed, so did the cultures. The Hoabinhian culture emerged around 12,000 BC and persisted for almost 10,000 years. They were located in what is now Southeast Asia, with most known sites in Thailand. Similar cultures emerged at about the same time in Japan (Jomon culture) and northern China.

All three depended upon shellfish, fish, small game, and wild plants for subsistence. They used stone tools and made cord-marked pottery. In addition, the Hoabinhian and northern China cultures developed agricultural systems.

Evidence for agricultural development in any ancient culture depends on associations. Plant fragments found in association with Hoabinhian stone fragments in a limestone cave in Thailand radiocarbon date to 10,000-8,000 BC. These plant fossils include almond, betel nut, kotamba, broad beans, pea, bottle gourd, Chinese water chestnut, pepper (*Piper*), butternut, Chinese olive, candlenut, and cucumber. These plants were used as nuts, edible oil seeds, spices, stimulants, vegetables, and containers. Their association with this archaeological site suggests a culture more developed than a gathering culture.

Further evidence from Taiwan indicates a similar culture was present in settlements along coastal terraces near river estuaries. A core taken of the sediment at the bottom of Lake Jih Yueh T'an representing 60,000 years of deposition, showed significant changes in pollen deposition about 10,000 BC. A trend of increased growth of secondary forests near the lake and accumulation of charred fragments of trees in the lake indicate ancient human activities which persistently disturbed the primary vegetation. These activities were probably related to increased cultivation.

Further associations make the story more compelling. Evidence of silkworms implies cultivation of mulberries; cord-markings on pottery and extensive reliance on fishing for subsistence indicates cultivation of plants for cordage (in the Far East these were hemp, jute, ramie, cotton, and kudzu); lack of extensive animal or shellfish remains in an archaeological site suggests heavier reliance on cultivation to meet food needs; similarity of names for a plant in several languages implies one domestication and a subsequent spread to other regions. Botanists study the distribution and variation of food plants and their wild relatives and draw



conclusions about their geographic origins and antiquity in cultivation. "Wild" and "cultivated" forms of a plant differ in many morphological traits, and the presence of the "cultivated" type is positive evidence that cultivation was being practiced. Bits and pieces of evidence are piling up to give a more complete picture of early domestication. What is unusual about Dr. Chang's work is the model built from these implications and associations. He has created a vivid picture of the early cultivators.

1) Most of the earliest cultivators of tropical and subtropical Southeast Asia inhabited estuarial plains and low terraces and engaged for subsistence mainly in fishing. In their habitat were abundant wild plants, which, because of the topographical complexity, were highly diversified. These fishermen led a settled, stable life and were familiar with the nature and uses of many available plants. Utilization of select plants gradually gave way to their control and cultivation as a perhaps minor but essential means of subsistence.

2) Wild and initially-domesticated plants in the fishing-hunting cultures of Southeast Asia were probably first used mainly for containers (e.g. bamboo trunks and bottle gourds) or as cordage for use in fishing (nets, fishlines, and canoe-caulking material); or were herbs with various uses, or poisons. The human's dependence upon plants for these and other uses, plus the obvious food value of many aquatic plants, wild fruits, berries, roots, and tubers, were among the strong reasons for their continued and growing use and eventual cultivation.

3) Under these circumstances the first wild but utilized plants that became the cultigens in southeast Asia probably included bamboos, the bottle gourd, fruit trees, some aquatic plants, and such roots and tubers as the taro and the yam. There is general agreement that in Southeast Asia root, tuber, and fruit plants were cultivated much earlier than cereal plants. Among the cereals, millet, sorghum, and Job's-tears are thought to have been used before rice.

4) The initially cultivated crops probably played a minor role in the total subsistence system of the inhabitants, supplementing a diet derived mainly from fish, wild animals, and shellfish. Food cultivation was at first probably a small-scale undertaking in little patches near the individual homes. Only small peripheral forest clearings were necessary, and no tool more elaborate than a digging-stick was used.

For these people, the main food was fish, and plants were secondary in importance. They went on to become dependent on the culture of rice for food, but their early cultivation system sounds a lot like backyard gardening to me.

In each region of ancient civilization, unique major crops were domesticated: cereal grains in the Near East; millet, sorghum, yams, and groundnuts in Africa; rice and soybeans in

China; corn, beans, and squash in Mexico. Each of these has had major changes from their wild progenitors.⁴ The changes which domesticated a plant were mostly selected in a garden-style cultivation system. The first domesticates in each region were probably things we use in small quantities: medicines, herbs, spices, stimulants, fibers, dyes, ritual plants, vegetables, fruits, flowers. Once we got used to the idea of growing some of our food deliberately, we would be more likely to take on more and more work in exchange for stability, easy transport and storage, reduction of seasonal fluctuations, or the ability to support more people on less land. Knowing that farming started small gives me hope that we can transform our industrialized agriculture to a more human-scaled system.

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SOIL AND NUCLEAR POWER - CONTINUED FROM PAGE 17
related deaths, plus cause \$105 billion in property damages (1980 dollars).³

Does that estimate of \$105 billion take into consideration the loss of agricultural land, of four inches of topsoil in the Kansas River Valley? Many farmers carry hail insurance, but they cannot buy insurance coverage against a nuclear accident.

Since 1957, The Price Anderson Act has protected the nuclear industry by limiting its liability in case of an accident. Even though a Wolf Creek accident could cost \$105 billion, the utilities owning it are liable for only \$640 million. In legislation to extend the Act, the House Interior Committee has recommended limiting liability to \$6.5 billion.⁴ The other \$98.5 million loss still would have to be borne by the victims, although federal tax dollars would certainly be involved in the clean-up of radioactivity.

The Reagan administration is deeply committed to revitalizing the nuclear power industry in the U.S., as the Environmental Task Force learned from internal documents of the Department of Energy. They are openly promoting legislation to speed the licensing procedure by preventing the NRC from holding any public hearings after construction of a nuclear plant.⁵ In the wake of Chernobyl, we had better be more cautious.

We may someday develop our prairie-like agroecosystem and prevent soil erosion. But we could lose the soil if a Chernobyl-type nuclear accident occurred. Amory Lovins points the way

CONTINUED ON PAGE 26

Natural Connections

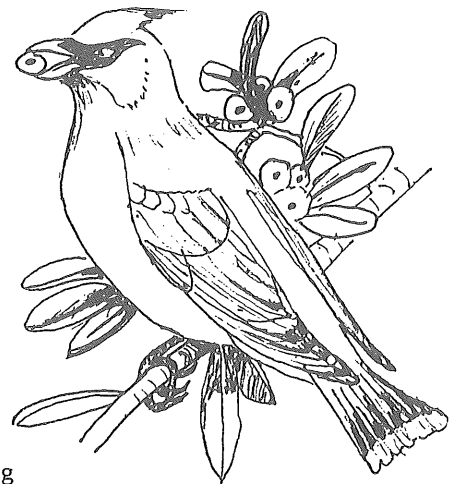
Trees on the Plains: They're for the Birds

Melissa Sarlat

Birds often deserve the credit for originating or spreading forest habitats. Some bird species are almost entirely frugivorous (eating only the fruits of plants), like the Cedar Waxwings and Brown Thrashers, while others, such as woodpeckers, robins, warblers and vireos rely on a variety of food sources. Fruiting plants have devised means of attracting birds to get their seeds dispersed. As the plant matures it begins to fruit, and birds begin eating those fruits, ingesting also the seeds contained within the pulp. Birds then transport the seeds to other locations and deposit them through regurgitation or in fecal matter. Eventually, unless the process is checked (by fire in a prairie ecosystem), the countryside will begin to revert to a young forest, the early stages of which are made up of bird dispersed plants.¹

There are several factors involved in attracting a bird to a specific plant: attractive coloration, nutritive quality, provocative habitat, and, simply, quantity of fruit. A plant does not benefit when its fruit is taken unless the seed is fully developed. Plants with brightly colored fruits cue the birds as to when eating is prime, which coincides with seed ripening. The berries of pokeweed (Phytolacca americana), a plant occurring in thickets, clearings, or open woods, ripen to a dark purple when they are suitable for removal by birds. Apparently coloration is enough encouragement, because studies have shown that until at least 40% of the pokeweed berries were ripe, no birds visited the plants.²

The quality and quantity of fruit produced are great bird attractants in many plants. During the spring and early summer when herbaceous plants in the prairie are emerging, and trees are beginning to bloom and/or fruit, many birds are looking for juicy, fleshy, fruits to eat. At this time of the year fat content is less important to a bird, so fruits like those of mulberry (Morus rubra, M. alba) or American plum (Prunus americana), with 82-85% water content, may be taken in abundance.³ During the fall (migration time for many birds), or winter, however, a higher fat content is necessary.⁴ Fall fruiters such as the flowering dogwood (Cornus florida), usually found in moist, rich prairie soils, have a 20% or higher fat content.⁵ Along with quality of the fruit, the quantity of fruits produced may also be important. In the spring and early summer when insects are readily available for consumption, a plant must compete for dispersers. Because birds can gain protein from insects during this time of year, it is not necessary for a plant to



Cedar Waxwing

waste energy manufacturing high protein fruits. Therefore, plants that save energy by not producing expensive, rich fruits can direct that energy towards providing large numbers of small fruits. This leads to greater dispersion and possibly greater varieties of habitats for those future generations of plants.

Plant attractiveness to certain birds may also be determined by the habitat the plant occurs in. The presence of water, grazed pastures, and fencerows attract the greatest number of birds, and these landscapes therefore increase disperser abundance.⁶ Not all birds, however, choose these habitats. The Bobwhite Quail for instance, is partial to open areas, such as first or second year fallow land, or the outside of forest edges, but will refuse to feed in these areas unless there is adequate protective cover from predatory hawks. The prairie ecosystem is one of the favored habitats of the Bobwhite. The prairie has well drained soils, as well as protective cover from the various grasses and leguminous plants. This ecosystem provides shade, shelter through the plant leaves, and a high quality, bountiful food source from the sennas, mimosas, trefoils and a multitude of other plants. Although quail prefer to inhabit the ground, they will fly up to reach grapes, mulberries or persimmons, often found by fencerows in the Great Plains. For most of the year quail do completely digest the seeds they consume. In the summer months, however, when there is an abundance of fruit, hard seeds, such as those produced by persimmons and many mimosas, are passed through uncrushed and left to germinate.⁷

Some fruits remain for a long time on the plant, shrub or tree, and this persistence appears to aid dispersal. Those seeds that are retained through the winter have fewer losses to weather breakdown and to the appetites of seed predators (squirrels and mice).⁸ Winter in the Great Plains brings gale winds, snow and often scarce food supplies for birds. The persistent

fruits of eastern redcedar (Juniperus virginiana), hackberry (Celtis occidentalis), Japanese honeysuckle (Lonicera family), Pasture rose (Rosa humilis), and poison ivy (Rhus radicans) provide a valued energy source during this critical period. The redcedar can hold onto its fruit all year. It provides blue-grey fruits for large flocks of Cedar Waxwings, American Robins, and Starlings, who in turn, take those seeds some distance before depositing them. Experiments show that redcedar seeds passed through the gut of Cedar Waxwings generally germinate 35-40% better than those that are manually depulped.⁹ This may be an indication of why redcedar has had so much success expanding its territory. Hackberry trees also attract Cedar Waxwings, robins and Starlings to their dark red to purple fruits. Unlike the redcedar though, its fruits are usually picked off by March or the beginning of April. Because hackberry favors moist floodplain areas, it probably gains more attention than redcedars, primarily by its presence near water. The Japanese honeysuckle is only mildly tempting to birds in the fall, but come January or February, when other foods are scarce, it gains wide attention and receives good dispersal. This vine is fast becoming considered a weed problem, growing up to thirty feet a year. For Northern Mockingbirds, whose range is expanding, rose hips furnish a favorite winter food. Rose hips are very nutritious, supply many seeds per fruit, and therefore attract many bird species and gain wide dispersal. For the Black-capped Chickadee poison ivy berries provide a wonderful winter feast. Both inhabit thickets, open areas and woodlands. The berries ripen from September to November, but persist through the winter, providing a valuable food source. Although humans would prefer to abolish poison ivy, its winter availability may be essential to the diets of many birds.

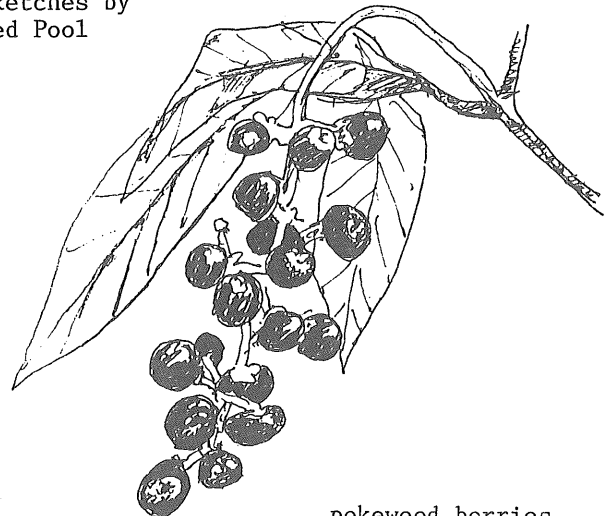
The Great Plains, including the tall grass prairie, have been seeing increases in the encroachment of trees and forested habitats. With the coming of ownership rights, fences have been put up, land has been plowed and fires, which formerly occurred naturally every five to ten years, have been prevented. All these factors lead to an increase in the number of trees that survive to maturity, and in turn to the number of seeds that will be dispersed. Seedlings that germinate away from the parent plant have a higher rate of survival.¹⁰ Therefore, it is a benefit to have seeds removed from the area of origination. The habitat attracting the greatest number of birds happens to be fenceposts. After feasting on flowering dogwood, sassafras, redcedar, wild cherry, poison ivy or Japanese honeysuckle, birds often fly to fencelines to digest their meals. The ground below soon becomes covered with young plants. Birds benefit from this new cover, food source and nest site. Because most farmers don't plow right up to the fencerow, these plants are left to mature. As the plants mature, their seeds are then disseminated to other fencerows.

The past 100 years have seen a decrease in the number of fires tolerated on the prairies and an increase in the amount of cultivated ground surrounded by fences. This has encouraged the growth of the various bird dispersed tree species. Where those newly established seedlings or young plants were once burned, there now grow mature trees, capable of producing seeds. On and on the trees spread into pastures, and forests grow.

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Sketches by
Ted Pool



pokeweed berries

Raptors on the Rebound

Dennis Rinehart

It was with a sense of awe that I gazed at the eagles, owls and hawks at the Prairie Raptors Project. The Prairie Raptors Project, operated by Maurie Weigel in northwest Saline County, takes in and cares for predatory birds that are unfit to live in the wild due to injuries or imprinting. Yet, even captive and disabled, these avian creatures retain a degree of the pride and majesty that they must exhibit in their natural state. It was the first time I had ever seen eagles for real--outside of films and TV that is. The experience was a very precious one.

Observing a bird of prey is a precious experience, not only because of the birds' beauty, but also because they are rare. As secondary carnivores, raptors live at the top of the food pyramid. Consequently, their numbers are naturally much smaller than many other birds and animals. Moreover, prey bird populations have been unnaturally reduced--to the point of extinction in some cases--by the activity of humans.

During the eighteenth century and the early part of the nineteenth century, certain species of raptors came under heavy fire, literally, from farmers and ranchers. Herders viewed them as threats to livestock. Eagles were regarded as the chief villains. This "Chicken Hawk Syndrome" caused the virtual extirpation of the Golden Eagle east of the Mississippi river.¹

Much of the destruction was not so purposeful. As farms spread across the landscape, the natural habitat of raptors disappeared. Those species, such as the Golden Eagle, which could not adapt to the new surroundings, either retreated or died. Many of the small mammals which serve as prey for feathered hunters suffered severe population reductions as a result of habitat destruction and eradication campaigns. This, of course produced proportional losses in their predators. Massive declines in prairie dog populations, a favorite prey of *Aquila chrysaetos* (the Golden Eagle), contributed heavily to the disappearance of the golden eagle from the prairie.² The myriad of water projects in the Midwest and West destroyed thousands of acres of raptor hunting grounds and inundated many eyries. The saga of the Sonoran Bald Eagle is typical:

No one knows how many Sonoran Bald Eagles historically lived in the Southwest. Stephen Hoffman, a U.S. Fish and Wildlife Service biologist, guesses that up to two hundred pairs once scattered along the region's rivers. "But by the late 1800s," says Hoffman, "overgrazing and land mismanagement had severely disrupted many watersheds. And by then most of the eagles were gone."

Bald Eagle



Golden Eagle

After the cow, the farmer. By 1950, almost every southwestern river had been divided up, dammed, and diverted. As rivers ran dry, the Bald Eagle's range, which had encompassed a seven-state area, shrank like a punctured balloon.³

The beleaguered birds responded to the onslaught by withdrawing to a few remaining habitat areas in secluded regions mainly in the West, but there was yet another threat from which there was no escape. The chemical war on insects began in the 1940s. But there were many casualties other than insects. Aves turned out to be especially sensitive to the biocides, dubbed insecticides, that were produced and distributed in huge quantities. Researchers in Oregon established a direct link between organochlorine pesticide spraying and the decline of the Peregrine Falcon (*Falco peregrinus*) population in that state.⁴ Other raptors suffered similarly.

Even when concentrations of the chemicals were not high enough to kill the birds outright, the birds' capacity to reproduce was often negated. Affected nesting pairs failed to produce eggs, or when eggs were produced they were not viable. DDE, an organochlorine pesticide which also occurs as a breakdown product of DDT, in concentrations as small as 15-20 ppm in egg shells of Peregrines, caused the eggs to not hatch.⁵ The role of pesticide-induced infertility in the decline of raptor populations has been well documented.

The combination of these stresses drove populations and even entire species close to the brink of extinction. The Peregrine Falcon was totally annihilated in its range east of the Mississippi.⁶ Its numbers in the West cascaded to a paltry 25 known pairs.⁷ Maine was host to the only known nesting pair of Golden Eagles east of the Mississippi in 1984.⁸ Our national symbol dived into the endangered zone as well: "By the early 1970s its population had plummeted

to 3000, from an estimated 25,000 to 75,000 in the 17th and 18th centuries."⁹ The Sonoran Bald Eagles, a population of Haliaeetus leucocephalus in which the birds are smaller and earlier breeding than others of the same species, were reduced to fewer than 36 individuals by 1977.¹⁰ Only five California Condors (Gymnogyps californianus), including one female, are known to survive in the wild.¹¹

Sensing the imminent loss of these marvelous avian specimens, people began to respond. Canada banned DDT in 1970. The United States followed suit two years later. Laws designed to protect raptors have been enacted by Congress. Such legislation includes the Bald Eagle Act, the Migratory Bird Act, and the Endangered Species Act. Large tracts of land have been established as refuges in an effort to preserve habitat.¹² The 50,000 acre Haines Eagle Preserve in Alaska, opened in 1982, is one example.

Captive breeding and reintroduction programs are ambitious attempts to increase raptor populations. In Cornell University's Peregrine breeding program, they use elaborate measures to obtain semen from males for artificial insemination of females.¹³ Because the native population had been extinguished, breeders developed a new breed of Peregrine for reintroduction to the East by crossing Western Peregrines with European Peregrines.¹⁴ The Eagle Propagation Program, located in Millstadt Illinois, breeds eagles in captivity. The San Diego Zoo was the site of the hatching, in 1983, of the first two California Condors born in captivity.¹⁵

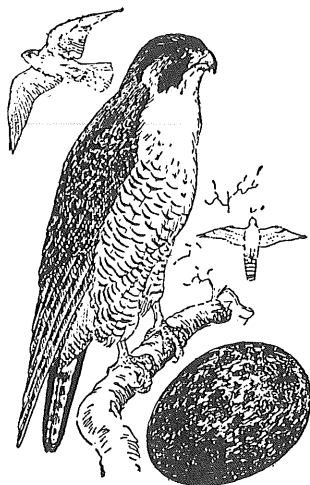
Once the chicks reach fledgeling stage, they are ready for the next step, reintroduction. This is done through a process called "hacking." Technicians put the fledgelings in a cage, known as the hacking tower, in an area of suitable habitat with the hope that the birds will come to recognize that area as home. Then the cage is opened and the birds are slowly weaned from the cage and hand feeding (though the birds never see their feeders, which is necessary to avoid imprinting) as they learn to fly and to hunt on their own.

As of 1984, seventy Bald Eagles bred at the U.S. Fish and Wildlife Service's Patuxent Wildlife Research Center had been hacked out, while New York's Endangered Species Unit had reintroduced 85 Bald Eaglets.¹⁶

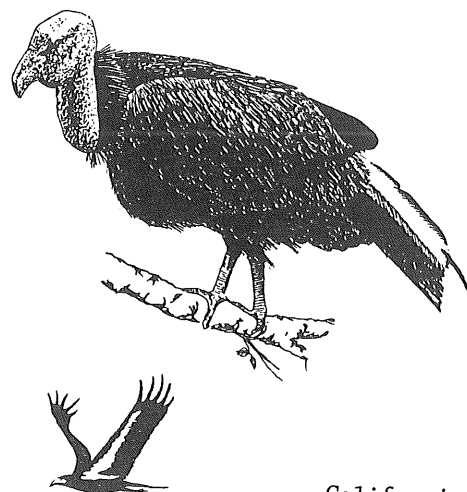
Between 1981 and 1983, fourteen Golden Eagles were released in North Carolina's Pisgah National Forest, where mountaintop grassy balds are maintained as natural habitat for the Golden Eagles.¹⁷ This summer marks the beginning of a six to eight year Golden Eagle hacking program in several counties of western Kansas. This year's release of three eagles is taking place in Russell County at a site near Wilson Reservoir.¹⁸

The Eastern Peregrine Falcon Recovery Plan is looking to set up hacking sites in six states in its Southern Appalachians Region. Four falcons were released at each of two sites, one in the Smoky Mountains of Tennessee and the other on Grandfather Mountain in North Carolina, in 1984. Project director Gary Henry hopes to release as many as 50 falcons this year.¹⁹ In the Northeast, the Peregrine Fund has hacked out birds at marsh sites in Virginia and New Jersey as well as sites in the Adirondacks, the Green Mountains, and the White Mountains. Many of these releases were definite successes in that some birds returned to the sites after migration and set up territories.²⁰ Scientists have recommended a Peregrine reintroduction program for Oregon, citing the successes in the East.²¹

An interesting twist in Peregrine reintroduction is that they have been successfully hacked out in urban areas. Unlike the Golden Eagle, the falcon has been able to adapt to manmade surroundings. Cities are actually quite hospitable to Peregrines, supplying nesting sites in the form of tall buildings and an abundance of the falcon's natural prey, other birds such as pigeons and sparrows. As of 1982, 52 Peregrines had been hacked out to urban areas.²² New York, Los Angeles, Philadelphia, Washington, Norfolk, Toronto, Ottawa, Montreal, and Edmonton, are some of the cities in which falcons live.²³



Peregrine Falcon



California Condor

These great efforts have propelled the raptors along paths of recovery. By 1984, Bald Eagle numbers had risen back to a level near 13,000 in the 48 contiguous states.²⁴ The Sonoran Eagles have now struggled back to a three digit mark.²⁵ Ten pairs of the new breed Peregrine were known to dot the Northeast from Virginia to Canada as of 1982.²⁶ The California Condor, by exception, teeters on the brink of extinction. This spring's planned addition to the five known wild condors by reintroduction was aborted because the captive birds were judged too tame to be released to the wild.²⁷

The California Condor serves as a reminder that the battle is not over. Raptors face continued threats to their existence. Poaching is an ongoing problem. Habitat is still being destroyed. Cliff Dam, part of the Central Arizona Project, would inundate Sonoran Eagle hunting grounds and eyries if completed, adding one more gloomy chapter to the saga of the Sonorans.²⁸ New Mexico's Colchiti Reservoir on the Rio Grande may promise a similar fate for the winter hunting grounds of two dozen migrating Bald Eagles.²⁹ Persistent insecticide residues in the West still exist in levels sufficient to pose some danger to raptors. Moreover, the pesticides are still used in Central America, where many of the carnivorous fowl migrate.³⁰ Compound 1080, a poison used against coyotes, is causing casualties among eagles.³¹ Lead poisoning from lead shot is increasingly imperiling eagles.³² A female condor died this year as a result of lead poisoning, which is a major threat to the few remaining wild condors.³³

The raptor recovery is under way, though it will require continued diligence to keep these birds part of our world. Perhaps the day might not be far away when a raptor sighting is more precious for its beauty than for its rarity.

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SOIL AND NUCLEAR POWER - CONTINUED FROM PAGE 21 to a sustainable energy policy, a necessary part of a sustainable agriculture:

... we do not now and never have faced the choice between nuclear risk and freezing in the dark...it's cheaper to save electricity than to make it, even if constructing and decommissioning nuclear plants were free. Least cost energy policy is the simplest way for any nation to avoid another reminder that we all live near Chernobyl.⁶

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A Tallgrass Prairie Preserve on the Horizon

Mark Gernes

Tim Evans

"What a thousand acres of Silphium looked like when they tickled the bellies of the buffalo is a question never again to be answered, and perhaps not even asked." The sentiment aroused by this statement of Aldo Leopold in "July" of *A Sand County Almanac* is a result of the mystique of the tallgrass prairie, which once covered nearly 250 million acres of North America.¹ The North American tallgrass prairie, on which the Silphium or Compass Plant grows, is a legacy of biological and cultural history that is unsurpassed and rapidly dwindling. Since the late 1950's numerous attempts to preserve a large contiguous tract of tallgrass prairie under the auspices of the National Park Service (NPS) have met with heated confrontations and disappointments.

A move was made by the NPS in the mid 70's to study potential locations for the then proposed Prairie National Park. The NPS and several conservation organizations endorsed the Preliminary Environmental Assessment for the proposed Prairie National Park in 1975. This report claimed that a prairie preserve could be obtained for \$20 million.²

This set the stage for two legislative attempts to acquire a prairie site which received little support. A 1977 bill, introduced by Representative Larry Winn (R-KS), called for land in the Flint Hills of Kansas to be obtained through a process of land condemnation. Kansas ranchers and legislators strongly opposed this traditional "taking" of private land by the federal government for public purposes. Winn introduced a second bill in 1979 based on fresh land acquisition ideas. This legislation called for conservation easements on lands in Kansas and Oklahoma which would be acquired only on a willing seller basis. It was written with both the land owners and the American public in mind, but this bill received little Congressional support because it included too much potential acreage and would cost nearly \$80 million.³

The bill proposed to acquire easements on three prairie parcels, totalling 374,000 acres. Over a period of years, the federal government would obtain ownership through a willing seller-willing buyer arrangement, although it was never intended that all these lands would be pur-

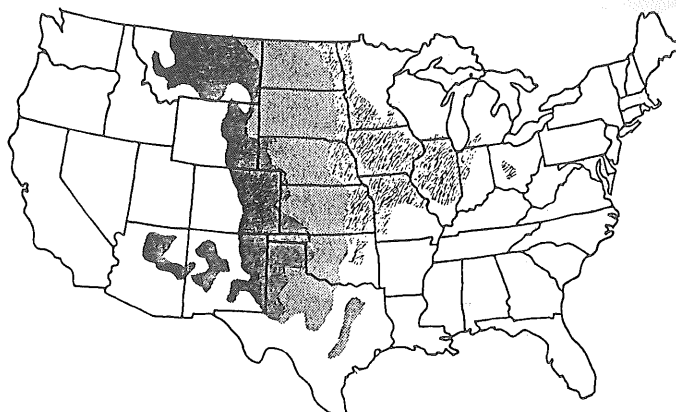
chased. Critics said 374,000 acres were too many. Proponents pointed out what a tiny percentage of the original tallgrass prairie it represented and argued that to preserve diversity, an area this size was needed.⁴

In October of 1983 a large tract of land in northeastern Oklahoma, twelve miles north of Pawhuska, went on the open sales block. This is near one of the proposed sites in the 1975 report. The trustees of the 29,014 acre Barnard Ranch received no acceptable bids, and the ranch is still open for sale. The trustees are very much interested in providing the land for the long-sought prairie preserve.




A willing seller offer is almost too good to be true. The surface riches of the ranch are, however, not all that is at issue. Osage Indians hold sole proprietary rights over the minerals of the Osage region, including the underground reservoir of oil under the Barnard Ranch.

NPS assurance to the Tribal Council that classifying the land as a "preserve" rather than a "park" allows for mineral exploration and extraction has not altered the Council's opposition to the preservation project in Osage country. Classification as a preserve also allows for controlled hunting and grazing. This would be beneficial, since the planned management is to incorporate free ranging native grazers, bison and elk, in certain areas. Other areas would continue to be managed with domestic livestock, therefore changing the present ranching practices very little.

The present proposed prairie plan, though it is much less likely to preserve biological diversity as the earlier large tract proposals, has received much public support. Many conservation organizations support the proposal, including the National Audubon Society, The National Wildlife Federation, Sierra Club, Friends of the Earth and The Land Institute. The proposal has also been endorsed by several newspapers: The Daily Oklahoman, Tulsa World, Wichita Eagle Beacon, Topeka Capital Journal, The Denver Post and The Wallstreet Journal. Many of the local merchants of Pawhuska support it since the tourism inputs will lend a helping hand to the sagging local oil and ranching economy.⁵



MAJOR GRASSLANDS OF THE UNITED STATES

-  Tallgrass
-  Mixed-grass
-  Shortgrass

The problem is apparently not lack of interest in the native prairie. A tailgate notion proposed to be implemented with the prairie preserve is a National Prairie Parkway through the Kansas Flint Hills and down into Pawhuska, Oklahoma, to the Osage Indian Museum. This proposal has been supported by both sides. This fits well into the objective of the proposed tallgrass preserve: "to provide an environment for experiencing the biological patterns and relationships of the prairie and to realize the contributions the prairie offered to many cultures."

Ralph Adkisson, both an Osage Tribal Council member and a practicing attorney, is dubious of federal governmental promises about their oil rights. Adkisson and outspoken rancher Mark Freeman are working to rally The Osage Tribal Council, The Farm Bureau, The Cattlemen's Association, small oil producers and local residents to oppose the preserve in Osage county. They claim that present ranching practices have kept the prairie ecosystem intact without destroying it. This is a bold claim. We don't know what has already been lost from the area; much less do we have an understanding of what should be there. We can be sure that the ranchers' regular herbicide spraying has diminished the diversity. Typical grazing and burning regimes used in this area may encourage a strong showing of grasses, that is if the grasses are not overgrazed, but the prairie ecosystem contains more than grasses. The quote from Leopold mentions only one of hundreds of prairie forbs. Many of these cannot hold their niche long if grazed off or burned too frequently.

Though the opposition has been slow in getting a foothold, a comment recently featured in the Pawhuska Daily Journal by Secretary of the Interior, Donald Hodel may have fueled the fire. He said, "Like night follows day, ... a constituency will always oppose development.

Within five years anyone carrying on commercial activity in the preserve would find it difficult, if not impossible to operate."

This attitude and the local opposition to the preserve has possibly soured Representative Mickey Edwards (R-Ok) on supporting the present proposal. Edwards, who is almost certain of reelection, is a key figure in legislating a prairie preserve bill as the Barnard Ranch is in his district. The other pivotal legislator involved is Oklahoma Senator Nickles (R). Nickles is responsible for a 1984 task force investigation which made suggestions not fully supported by Edwards or mainline conservation organizations. The task force proposed a split land acquisition which did not include the entire Barnard ranch, but did include other lands which likely could be obtained on a willing seller basis. Their price tag of \$80 million was also too high for acceptance by Representative Mickey Edwards.

A delegation of preserve supporters sponsored a site visit by William Penn Mott, director of the National Park Service, in late June, 1986. According to Ron Klataske, Regional Vice President of the National Audubon Society, Mott was impressed with the site and is very supportive of the proposed preserve plan. As Klataske has known since October of 1983, Mott realizes what is at stake, and he fully understands that we might not get another chance this good in fifty years, or even ever!

Freshly off the proposed prairie preserve, Mott addressed the Tenth North American Prairie Conference in Denton, Texas. He boldly proclaimed that we would have a Tallgrass Prairie Preserve in 1987. He estimates the total cost will be about \$20 million, with the money coming from the Federal Land and Water Trust Fund which contains over \$2 billion for such purposes. If Congress won't pass proper legislation for these funds, another option would be the sale of parts of \$100 million worth of government lands in other states, primarily Arizona.

In a meeting with the Osage Tribal council, Mott reportedly again assured them that the classification of the land as a preserve would benefit both their needs and the needs of the NPS. Understandably their skepticism is strong. The federal government is notorious for dodging treaty agreements with native peoples. This, however, is not a special pact. A similar classification was given to lands in Florida so that oil production could continue.

Oil exploration and extraction will not be ruinous to the objective of the prairie preserve. In fact, the oil operations would be able to serve as on-site interpretive tools of the cultural heritage that the prairie is mother to. This is the truly remarkable thing about the Barnard site, the chance to preserve for all generations the biological heritage, the epic cowboy-cattle ranching practices, the rich history of oil rigs in the Oklahoma region of the tallgrass prairie and the traditions of the Native American Indians. All are an integral

part of the tallgrass prairie legacy.

Mott supports proposals drawn up by Ron Klataske and other interested individuals where-by the entire Barnard Ranch and other available lands will be purchased for the NPS and an additional 25,000 acres of the adjacent Chapman ranch will be managed in complementary fashion with conservation easements on some of the Chapman lands. The Adams Ranch to the north is also open for sale on a willing seller basis.

Specific legislation for the Osage Tallgrass Prairie Preserve is expected to be presented in the first session of the 100th Congress in January or February, 1987. If interested in being kept up to date and informed about the prairie preserve, contact:

National Audubon Society
West Central Regional Office
210 Southwind Place
Manhattan, Ks 66502.

Ask to be placed on their prairie preserve mailing list and include the names of your congressional representatives.⁶

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6. A sincere note of thanks to Ron Klataske who supplied many information sources including National Audubon Society memos and a personal interview.

Tenth North American Prairie Conference

Danielle Carre'

"The Prairie: Roots of our Culture; Foundation of our Economy" was the theme of the Tenth North American Prairie Conference held June 22-26 at Texas Women's University in Denton Texas. Texas, celebrating its sesquicentennial year, was an appropriate place to hold the conference since one of the major concerns throughout the conference was the preservation of remaining areas of pristine prairie. Texas could once boast of 12 million acres of prairie; now only 5,000 acres remain. The Texas Nature Conservancy considers the Blackland Prairie the most endangered plant community in the state. During this year of celebration, Texans need to recognize the importance of preserving their few remaining acres of prairie.

The Prairie Conference was not a typical scientific conference; the organizers strove to make it interesting to the general public as well as the scientists. The talks covered a broad range of topics, from folklore literature and food of historic indians to soil microbiology and plant ecology.

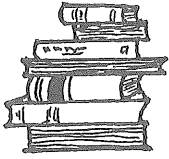
The Land Institute was well represented at the conference this year. We presented a total of five papers on the research results of the 1985 growing season. Jon Piper gave a talk entitled, "Seed Yields of Three Herbaceous Perennials at The Land Institute." Dana Price described the work done by Mary Bruns on the nutritional quality of Illinois bundleflower, and she also explained the results from the four year biculture experiment. Michel Cavigelli, who is now working at the Kansas Rural Center, presented the research studying the effects of *Helianthus Maximiliani* on naturally occurring weeds. I described the insect and plant pathogen surveys we conducted in our monoculture and

polyculture plots. The concept of looking at the prairie as a model for an agriculture system intrigued many people, and we had plenty of questions concerning our work.

Marty Bender and Kelly Kindsher, former Land Institute research associates, also took part in the conference. Kelly gave an interesting talk about the ethnohistorical use of native plants as food, and Marty presented a paper for Carol and Jerry Baskin of the University of Kentucky on the germination and flowering requirements of *Liatrus cylindrica*.

There were other activities in addition to the presentations, such as exhibits, and landscape and photography competitions. Tuesday was set aside for field trips. Denton, Texas is in the area where the Grand Prairie, the Cross Timbers and the Blackland Prairie converge, and the conference offered three different field trips to the prairie remnants in the region. I went on the Meador Prairie field trip. The Meador Prairie is a privately owned 2,000 acre Blackland Prairie haymeadow. We compared the vegetation of reseeded areas to the native sod and discussed various management techniques. The trip provided a good opportunity to view the geography and vegetation of the region.

Proceedings are published after every conference. However, the 1984 proceedings were just coming out at this conference so it will probably be awhile before the 1986 proceedings are available. Lincoln, Nebraska, will be the site for the 1988 conference. I suggest that anyone interested in the prairie ecosystem should consider attending. The North American Prairie Conference provides an excellent opportunity to learn about the ecological and cultural aspects of the prairie.



Books

Leaving the Land

by Douglas Unger
Harper & Row, Publishers, 1984, 277 pages.
\$13.95 (cloth)

Reviewed by *Teresa Maurer*

This book title caught my eye as I was perusing the Salina Public Library list of summer reading. The jacket promised a story dealing with contemporary rural America, and I was curious about what a novelist would say about people trying to weather sweeping changes in American agriculture.

The novel is set in and near a small remote town, Nowell, in western South Dakota. The early part of the book introduces Marge Hogan and her brothers and parents, who all work to raise beans, corn, hay and cattle. After World War II begins and escalates, turkey and sugar beets are suddenly designated as "war priority". Marge's father, Ben, is forced by the government to raise turkeys even though he sees that other farm products are needed. The windfall from the war policy clearly benefits two established businesses in Nowell, a turkey plant and a sugar beet processing plant. Unger shows us, through Hogan family eyes, how the power seized by the turkey plant during the boom changes the form, function and ownership of farms around the rural town. Ben resists the coercion and objects to the low prices paid for his turkeys. He joins with other farmers to transport their turkeys to sell elsewhere and is violently thwarted.

Marge's dreams and disillusionment about her chances to find romance and love in Nowell propel her into a relationship with Jim Vogel, an attorney for the turkey company, Safebuy. He arrives in town, literally in the middle of a convoy of new processing equipment that will be used to increase production and cut labor costs at the turkey plant. In a conversation with Marge's father, Jim Vogel outlines the future, describing miracle grains, fungicides, and ten ton tractors and declaring, "Someday, with the new miracle hormones, farmers are going to raise turkeys that weigh a hundred pounds or more.."

A few days after Vogel pressures Ben to sell part of his land to Safebuy, Marge ambivalently agrees to marry Jim in a stormy scene in which she felt "as if the fields themselves had turned their backs. And she was about to do the same to them." Their roller coaster relationship and marriage seems to reflect the throes of the marriage of agriculture and business occurring around them. She describes her first encounter with Jim's business world:

"..as she learned in the next few days she had never met men like these [businessmen]. The men she knew would be pulling hydraulic hoses and clevis pins, lifting their heavy implements on and off three point hitches the same way these [business]men slipped light folders into briefcases..and sat pleasantly over drinks talking thousands of dollars in deals."

In the second half of the book, about twenty years have passed and Marge's son Kurt returns to Nowell, now a ghost town, to spend holidays with his mother. His flashbacks fill in the events of intervening years, as he grew up amid changes in family and town life catalyzed by Safebuy's vertical integration program. He describes how his parents were forced to face their ambitions and convictions when Jim had to defend Safebuy company contracts with the farmers. Marge, though she has reluctantly accepted the comfortable living furnished by Jim's work, finds herself in conflict with Jim as she supports the farmers who have protested contracts and destroyed turkeys. The outcomes of the contract court case and the marriage are painfully intertwined.

Over the years, as farms around them were turned into units run by hired farm managers, Marge's family and then Marge somehow held on to the land. In the last pages of the book, Marge gives the farm to her son, and he experiences the power of the family land and its history and faces Marge's original choice of staying with, or leaving, the land.

The book offers a telescoped chronology of the changes from agriculture to agribusiness as a backdrop for the troubles of the Hogan family and Nowell community. As a result, character development is sometimes sacrificed for descriptive detail, and motivations for people's actions are not always clear. The coherence of the story suffers occasionally for the same reasons. However, Unger's attention to detail in telling parallel stories of the family and the town is one of the best features of the book. His descriptions of the frustration of raising turkeys, the town dairy bar hangout, women talking in the local cafe, and a Hogan family dinner are small details that add reality to the story for me. He inserts humor with a sting in the dialogue, and in such episodes as Marge's parents' celebration of their "real" anniversary. There are haunting scenes, too, such as after a funeral when neighbors converge on a farm to take house and farm goods before the bankers descend.

One might describe this book as the flip side of *Lake Wobegon Days* in its willingness to examine some of the political underpinnings of personal tragedies in a rural area. I would recommend it to those who share Wendall Berry's concerns about the agricultural crisis as a crisis of culture.

The Soul of Soil *A Guide to Ecological Soil Management*

By Grace Gershuny and Joseph Smille
Gaia Services, Box 84, R.F.D. 3
St. Johnsbury, VT 05819
1986, 109 pages.

Reviewed by *James Henson*

Most general soils textbooks contain only minor references to green plants, above-ground animals, and people. In contrast, The Soul Of Soil by Grace Gershuny and Joseph Smille encompasses all the aspects of agricultural ecosystems which affect soil fertility and health.

Both authors are active in ecological agriculture organizations and as consultants to ecological farmers. Grace Gershuny market gardens with her husband in Vermont. Joseph Smille homesteads with his family in Quebec.

The authors develop concepts of ecological agriculture based on the integration of physical and chemical soil properties, soil biology, nutrient cycles, and agricultural practices. For example, all of the factors listed above affect the soil humus formation rate; in turn, the soil humus content affects each of these

factors. Gershuny and Smille view agricultural systems as simplified ecosystems and therefore artificial. The maintenance and health of these simplified ecosystems depends upon human action which is a product of cultural values. The authors perceive ecological farming methods, not as a rigid set of rules, but as derivatives from an understanding of agricultural ecosystems.

Soil science terminology and concepts such as the nature of clays, soil ion exchange capacity, pH, tilth, rhizosphere, and the role of soil microorganisms are presented with scientific veracity, but with a scarcity of illustrative diagrams and data. Supplemental reading in a standard soils text such as The Nature and Properties of Soils (8th edition) by Nyle C. Brady would provide the reader more elucidation on these subjects.

This book contains a wealth of practical, applicable information, on all farming practices that affect soil health and fertility. The subjects include soil observation and testing, tillage and weed control methods and implements, animal and green manure use, large scale composting, crop rotation, fertilizer use, and organic certification. Its abundance of applicable information and the integrating concepts make this book a valuable asset for ecological farmers and gardeners.

TERRY EVANS' PRAIRIE BOOK TO BE PUBLISHED

Prairie: Images of Ground and Sky

by Terry Evans, with introductory essays by Wes Jackson and Gregory Bateson. 72 pages, illus. 10 X 11 1/2, \$19.95. Available in October. The description of Terry Evans' book which follows has been excerpted from the Kansas University Press catalogue for fall and winter.

For nearly a decade Terry Evans has been photographing the prairie, capturing its beauty and biology. Evans says of her work, "The images are about the form, line, and pattern of the prairie. They express the rich diversity and variety of the prairie, with emphasis on the grasses, landforms, sky, and wildlife. The book is a statement about the wholeness of life, and perhaps the holiness of life, in an undisturbed prairie ecosystem." Sixty color and fifteen black-and-white photographs--all of native prairie--give spectacular evidence of her vision.

Avoiding the cliché of flatness and bigness, Evans presents a landscape of the spirit not unlike the desert or the ocean, celebrating nature over scenery. This collection combines closely focused studies of prairie vegetation and panoramic views of deep space, combinations of land and sky, and even the sky alone. Her photographs deal with the ecological facts of the prairie--growth patterns, erosion, and periodic fires that clear away old growth and allow the

prairie to rejuvenate. In the broad sweep of the prairie, Evans discovers patterns similar to those in her extreme close-up views.

Evans's lyric images are complemented by her introduction and by essays by environmentalist Wes Jackson and anthropologist Gregory Bateson. For those who treasure this precious (and vanishing) landscape, the book also contains a list of plants common to the virgin prairie and the descriptive statements of other writers who know the beauty of this region.

"Whether focusing on a single square yard of native grasses or a birds-eye panorama of the Flint Hills, Terry Evans's camera merges the specific and the universal. She shows the prairie as an infinitely nuanced landscape of the spirit, equal in power to the desert or the ocean. Her photographs look beyond scenery into the heart of nature itself."

-----Elizabeth Broun, Chief Curator, National Museum of Art, Smithsonian Institution.

"One of the leading photographers from the Midwest, Terry Evans portrays with dignity and beauty the great American prairie, evoking the very spirit of the grasses and terrain that make up this rarely understood, and underappreciated, landscape."

-----James L. Enyeart, Director, Center for Creative Photography.

County Poor Farms — Good Riddance?

Rob Peterson

The farm is home for a decreasing number of people in the United States. At the same time, an increasing number of people have no home at all. Historically, not only has the farm been home for a much larger segment of the population, but it was also a refuge for those who had no place to call home. From this country's beginnings to the 1930's and beyond, those who were unable to take care of themselves and whose families could not care for them were sent to "poor farms" to be cared for by public charity. What were these poor farms and what has become of them?

Families, communities, and religious organizations have long been concerned with caring for their members. Government concern that led to the type of poor farms established in this country dates back to the reign of Queen Elizabeth in England and the Poor Relief Act of 1601. This act provided for government maintenance of the poor in "convenient dwellings," to be paid for by taxes. Eventually workhouses were set up for the able-bodied poor and almshouses were set up for the aged and invalid. This distinction was short-lived, however, as a wide variety of poor people were soon placed in a common institution.

The American colonies inherited England's poor laws. Colonial governments passed laws as early as 1636 providing for the care of poor persons.² Counties set up homes for the poor which usually included farms and gardens. Those inmates who could work on the farms, helped in the gardens, or performed household tasks. Some of the inmates were even hired out to do highway work or pick oakum. Some poor farms manufactured bricks or clothing or other items for use in the home or for profit. Most inmates, however, were unable to do any work and were not required to do so.

Many inmates in New England's poor farms were recent immigrants who had not yet managed to settle themselves and make a living. This situation led a member of a committee appointed in 1858 to report on the charitable institutions of the state of Massachusetts to lament:

"The most enterprising and thrifty portion of the mass of inhabitants thus added to our Republic, speedily found their way to homes in the great Western States of the confederacy; while the destitute, the improvident, and the infirm, were left upon the seaboard."³

But alas, poverty was no stranger to the western frontier and as settlers moved west they brought with them their poor laws, nearly unchanged.

The state of Kansas included in its constitution of 1860 the following:

"The respective counties of the state shall provide as may be prescribed by law for those inhabitants who, by reason of age, infirmity, or other misfortune, may have claims upon the sympathy and aid of society."⁴

Indeed, the state's first poorhouses came into existence in 1866, and by 1899 nearly 80% of the Kansas counties had poor houses.⁵ As in New England, these homes included farms, and inmates performed the tasks that they were able to perform.

The idea of an institution for the poor where the inmates shared in the work was attractive for several reasons. Idleness was considered a "great evil"⁶ that deteriorated individual worth, decayed ambition, and paved the path to immorality. Work, on the other hand, was a good in itself and would be useful in restoring the poor to "positions of independence and respectability."⁷ Not only was work considered beneficial to the inmates of institutions, but their work could benefit the whole community. If the poor could produce food and other basic goods for their own sustenance as well as for sale, public expense for their maintenance could be greatly reduced or eliminated. Furthermore, poor farm work would help alleviate the problem of the "free ride." Poverty, it was thought, must not be made too lucrative.⁸

In fact, poor farms seldom if ever attained the goal of self-sufficiency. Most inmates were mentally or physically incapable of highly productive work, and some could do no work at all. While some poor farms' gardens produced most of their food, inmates' work seldom paid their supervisors' wages. Farm produce was a source of income, but it usually employed more hired than inmate labor and it rarely covered institutional expenses. In its 1858 report to the Massachusetts Senate, the special joint committee on public charitable institutions of that state reported the notion of a self-supporting state almshouse to be "utterly fallacious, unsound, and untenable."⁹ It argued that someone able-bodied enough to work was not a pauper and that any "able-bodied person who is not ashamed to be a pauper" would not allow the state to profit from his work.¹⁰ The degree of self-sufficiency of poor farms across this country varied as some depended heavily on public funds and others were nearly self-supporting.

The quality of living conditions on United

States poor farms also varied greatly. County governments held responsibility for administering poor farms and set their own standards. In Kansas the only prescription established at the state level was that care be "adequate".¹¹ Furthermore, supervisors were more often hired for their farm experience than for their ability to care for humans.¹² Finally, counties varied in the strictness of poor farm oversight. Some county commissions visited their poor farms monthly, while most visited annually, and many visited even less frequently. Living conditions were also affected by variation among the inmates. Some were sick, invalid, or considered insane; others were old and no longer able to care for themselves. Many had simply undergone misfortune beyond their control.¹³ No single description fits the living conditions of all poor farms. Conditions varied from grossly inhumane to reasonably good.

On the inhumane end of the scale were poor farms with inadequate heating and ventilation, overcrowding, too little and bad food, disease, filthy living quarters (sometimes in windowless cells), physical abuse of inmates, and other atrocities. The Massachusetts special joint committee report of 1858 expressed concern about immorality. Usually the poor farms attempted to separate males and females. This segregation was nearly impossible to enforce and intermingling led to "immoralities." Worse, children living on poor farms were exposed to much of what the committee considered "debase and corrupt," which cultivated their "base and evil passions."¹⁴

In Maryland an 1877 report by the secretary of the State Board of Health to the governor showed that nearly all of the county poor houses in the state practiced racial segregation. Usually one large building would house the superintendent and his family in one wing and the white inmates in another. A smaller building a quarter of a mile away would house the "colored" inmates. The report complained about the problem of segregation, but not of racial segregation. Rather, it bemoaned the lack of facilities for segregating different inmates. "Consequently," it reported, "the furious maniac, the timid dement, the crouching

imbecile, and the drivelling idiot are promiscuously huddled together."¹⁵ The report's demeaning language as well as its blindness to contradiction reveals that public attitudes toward poor houses were at least potentially derogatory and ignorant.

All was not grim, however, regarding this country's poor farms. Inmates in one poor farm in Maryland ate fish, oysters, and crabs from the South river as well as garden produce.¹⁶ Many institutions were kept clean by inmate work, caring wives of superintendents, or hired staff. The personalities of the superintendent couple made a big difference as did the size of the budget for hiring staff. A Kansas newspaper reported in 1936 on the poor farm in Nemaha County where the superintendent's wife prepared daily school lunches for twelve children, canned 1000 large cans of fruit and vegetables annually and baked hundreds of loaves of bread every month for the inmates. The farm had a dairy operation, the profit from which paid for electric lights and a new barn. The home also had running water and a hospital ward.¹⁷

Here in Saline County, the commissioners selected and bought the site for the poor farm in 1872. The purchase was touted in the Salina County Journal as "a fine stroke of financial policy," in that "it is reasonable to suppose that the crops raised annually will much more than pay the expenses for keeping the poor and all the expenses which may accrue in running the farm."¹⁸ However, subsequent county commission records show expenses paid by the county for care of the poor,¹⁹ and in 1904 the Salina Journal reported that the farm was as "near as possible" to self-supporting, and conceded that such institutions were not expected to support themselves. It reported a friendly and comfortable atmosphere, and good care for the unfortunate.²⁰ County records also reported revenues from wheat, and a neighbor of the farm, which closed in the 1930's, recalls a dairy operation that supplied revenue as well as dairy products for the inmates. Neighbors agree that no one thought the inmates were mistreated, and that the community did not have a derogatory attitude toward the inmates. "They were just people who couldn't take care of themselves," recalls one neighbor, who also felt that the



Saline County Poor Farm on date it was sold to the St. Francis Boys' Home, October 27, 1947. Photo supplied by St. Francis Boys' Home General Office.

inmates were shy and had "inferiority complexes." She remembers one caretaker who had previously been a barber who took upon himself the mission of cleaning up the previously imperfectly groomed inmates. "Made them take pride in themselves," she said, adding "but they still shied away from people." The Saline County poor farm closed down in the 1930's because, according to neighbors, it was deemed better and less expensive to care for the poor in other ways.²¹

The New Deal social welfare programs of the 1930's mark the end of the county institutions' prominence in caring for the needy. During this period, the state and federal governments began to assume greater responsibility for the care of the poor. County institutions were found to be inadequate and costly. New legislation preferred supporting individuals outside of institutions thereby encouraging self-dependence rather than simply maintaining people in a state of dependence.²² The Federal Social Security Act provided matching funds to states for assistance paid to needy who were not inmates of institutions.²³ The states passed this incentive on to the counties to provide care outside of institutions. Private care, partly funded by individuals' social security payments, has gradually replaced the county institutions. As for the farms, a 1943 article in the Social Service Review stated:

The operation of a farm in conjunction with a county home belongs to the day when there were supposed to be able-bodied inmates. However, that day is past, as able-bodied persons are no longer sent to county homes. A few elderly persons in county homes enjoy working in gardens or yards but they seldom are able to help in the farming operations. At present, the operation of the farm may obscure the real function of the county home [which is] the care of persons in the county homes.²⁴

While some county farms have only recently closed their doors, and others still function as county nursing homes or similar institutions, the institution of the poor farm is fading into the past.

But is the idea behind the poor farm obsolete? As the population moves away from the farm, poverty has changed from a rural to an urban phenomenon. Has this shift created an unbridgeable gap between the poor and the land? Or might the farm provide a permanent and fulfilling home to certain of the nation's growing number of homeless people? How might such farms be set up differently from the former poor farms? These questions certainly merit further exploration.

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A Land Institute Student Directory 1976-1986

EDITOR'S NOTE: This information about former Land Institute students is as up-to-date as I could make it. I apologize ahead of time for mistakes that must be here! Thanks to everyone who responded to our request for news.

FALL 1976

RUSS BREHM, Rt. 1, Box 77, Hope, Ks. 67451.

Russ and his wife Pat are farmers. They have one son.

JOHN LAWSON

SUE LEIKAM (BURGHART), 275 W. Juniper Ave., # 1141 Gilbert, AZ 85234. Sue has been working in advertising and public relations. She has two children, Jesse and Rebecca, is divorced. She does not plan to stay in Arizona.

DAVE HENDERSON (deceased)

ERIC HERMINGHAUSEN, 96 Gerswin Dr., Centerville, Ohio 45459 (parents' address). Eric has become a skilled carpenter, working in Oregon and Ohio. He last visited The Land while part of a cross country peace walk in 1984.

"I am continually impressed when I get The Land Report. The evolution in the past 10 years is remarkable. Although I feel that we are definitely of a different genre, I still see you all as family when I read The Land Report, as we are all connected in our purpose."

KYLE MANSFIELD, 4404 Wentworth Ave. South Minneapolis, MN 55409. Kyle and his wife are attorneys. They have two small children.

NANCY VOGELSBERG (BUSCH), R.R. # 1, Home, Kansas 66438. Nancy and her husband Rick farm organically. Nancy raises calves, milks cows, and does field work in addition to caring for two children Noah and Allee.

SPRING 1977

NILS GUSTAFSON

JIM KOHRING

JOHN JANKOWSKI, 564 Navarre Dr., Stone Mtn., Georgia 30087. John graduated from Kansas State after he left The Land and now is an architect in the Atlanta area.

CINDY JONES (THOMPSON), 1611 Osborne, Salina, Ks. 67401. Cindy is married to Brian Thompson and they have three sons.

KERRY PETERSON (KRAMER), 332 Michigan, Pueblo, Colorado 81004. Kerry is the Administrator at the El Pueblo Museum, is working on an M.A. in anthropology at C.U. Married, two daughters.

JIM RODE

MICHAEL WEISS MARY HARBIN (summer 1977)

FALL 1977

MICHELLE ADAMS, P.O. Box 2065, Waxahachie, TX 75165. Michelle works as a day care licensing representative with the Texas Dept. of Human Services. She writes that she likes her job but someday wants to pursue her interest in

nutrition and perhaps branch out into the health and sanitation fields.

CAROL and JOHN CRAFT, Rt. 2, Box 71A, Hillsboro, KS 67063. Carol will finish her degree in elementary education at Bethel College in the spring of 1987. She & John are the parents of Nathan and LaRita. John teaches science at Goessel High School and continues to maintain wind generators, including those at The Land.

BILL ELLIOTT

MAUREEN HOSEY (WILLIAMS), 1628 Farmer Ave., Murray, KY 42071. Married to Brian Williams (1978). They have two daughters, Nellie and Sarah, and a son, Nathan. Maureen is going back to college to finish up a nursing degree.

"It's hard to believe we were students almost nine years ago. You all have really progressed since then (after getting rid of all the weeny arms). Our lives have changed quite a bit as well, but deep down we still have the same values and convictions that you all helped to nurture while we were students."

DAVE KEARNS - Dave called from Nebraska about a year ago, but we have no current address.

MEL STAMPE, 2362 Ravine St., Cincinnati, OH 45219. Mel and Pam Stampe have two daughters, Leah and Hanna. Mel managed a food cooperative for awhile, but now helps people who use computers at the University of Cincinnati.

MARTY PETERS, Shirakaba 1F2, Takaido-Nishi 1-23-1, Suginami-Ku, Tokyo 168 Japan. Marty is teaching English and playing in a jazz band.

JIM PETERSON, Dept. of History, Rice Univ., P.O. Box 1892, Houston, TX 77251. Jim is finishing a Ph.D. in history at Rice after earning a masters' degree at Kansas State University. He and Jeanne Green (Spring 1979) have a son, Christopher.

SPRING 1978

JEFF BROWN, Rt. 3, Box 117, Manhattan, KS 66502. Jeff is seeking work in Manhattan. His plans for the future include the following: "make a winter ascent of Mt. Sunflower, restore two old cars, learn more about stonemasonry, and participate in some canoe races."

AMANDA DECOLIGNY, S'Amanda's Inc., R. 295, Amherst, Virginia 24521.

TOM MOORE, 447 Pleasant, Lawrence, Ks. 66044. Tom is a remedial classroom teacher at Argentine Youth Service Alternative School in Ks. City, Ks.

FALL 1978

MARTY BENDER, 101 Morgan Bldg., Univ. of Kentucky, Lexington, KY 40406. Marty is in graduate school in botany. He went to the Prairie Conference in Texas with The Land Institute delegation in June and presented a paper for his major professor.

PAT DREESE, 723 Ratone, Manhattan, Ks. 66502. Pat hopes to finish his Ph.D. in grain science by May 1987. He is newsletter editor for the Audubon chapter in Manhattan.

CAROL MAGUIRE, 8012 Forest Trail, Dallas, TX 75238. "I'm living in Dallas now working as a 'grip' in commercial and industrial film/tape production. Some of my clients aren't exactly 'land type' people that we know and love, but they are paying me to learn- and I'm learning more about how the corporate structure works."
BRIAN WILLIAMS (see Maureen Hosey above)
Brian is a petty officer in the Coast Guard. He works on a buoy tender which covers the Ohio, Tennessee and Cumberland Rivers.

SPRING 1979

CURTIS CARROLL, 833 E. Duke, Lot 7, Vermillion, S.D. 57069. Curtis finished law school this spring and married JoAnn Muir on August 2.
JEANNE GREEN, c/o Jaromilla Slama, R. 1, Box 396 Burkburnett, Tx 76354. Jeanne lives with her grandmother on a farm and works as a remedial reading teacher in Temple, Oklahoma. She finished a master's degree in 1985. She and Jim Peterson have a son, Christopher.
ALISSA GUYER, c/o Health & Community Services, 200 N. Vineyard Blvd., Honolulu, HI 96817. Alissa worked for Volunteers in Asia and then Oxfam teaching English in Indonesia. She finished a Master's degree in Public Health at the Univ. of Hawaii and is working in that field.
RON MUELLER

WENDELL WIEBE, 413 Mississippi St., Lawrence, KS 66044. Wendell is doing construction work and his wife Laura Powell works at the Cornucopia in Lawrence. They plan to go to graduate school in the near future.

KARL ZIMMERER, Apartado 582, Cusco, Peru. Karl and his wife Medora have been in Peru, Karl to study Andean agriculture in the region of Paucartamo, and Medora to study regional art and landscape.

"I've begun dissertation research on the biogeography (domestication, genetic diversity and crop distribution) of a couple of Andean cultivars, potatoes and maize. I've mainly been making collections now for lab work that I'll do in Davis, Ca. in August & September before working with experimental fields next year. I'm happily married."

FALL 1979

JAY ELLINGHAUSEN, 1418 W. 10th, Sioux Falls, S.D. 57104.

JOY HASKER

ALI HENDERSON, 4003 Javins Dr., Alexandria, Va. 22310. Ali is a senior producer for Public Affairs Satellite System, Inc. which produces and sells TV news releases for 540 news stations.
KELLY KINDSCHER, Rt. 2, Box 394A, Lawrence, KS 66044. Kelly's book, Edible, Wild Plants of the Prairie - an Ethnobotanical Guide will be pub-

lished by the Univ. Press of Kansas in Spring, 1987. This summer he started working for the Kansas Biological Survey as a graduate assistant, writing a popular series of brochures on weeds for the public and working on a book on Medicinal Plants of the Prairie. This topic will also be his Master's Thesis in the Systematics and Ecology Department of the University of Kansas. Kelly bought a small house, part of a legal partnership/collective farm, just east of Lawrence last fall, built an attached passive solar greenhouse, and is creating a permaculture landscape for it.

MARK LIEBLICH, 3010-9 Spanish Ct., Raleigh, N.C. 27607. Mark worked at the USDA and then the National Council of Farmer Cooperatives in Washington D.C. He is now working on a Ph.D. in economics at N.C. State University, Raleigh, N.C.
PAM NELSON, Box 1127, Kotzebue, AK 99752.

Pam teaches 7th & 8th grade science in a town of about 3000 people. Her husband, Mike Spindler, is an assistant manager/pilot/biologist on a U.S. Fish & Wildlife Refuge.

KARL PARKER, 70 Green Ave., Castleton, N.Y. 12033. Karl finished a master's degree in biology. His wife is the pastor of a church.
MARI PETERSON, 419 Greenfield, Oak Park, Il. 60302. Mari gives her parents' address as she is taking a year off to travel and has no current residence. Mari resigned in June as executive director of the Kansas Natural Resource Council. She led KNRC the last three years, developing it into a well respected and effective statewide environmental organization.

SPRING 1980

PHYLLIS BOS, 1117 Harold, Salina, Ks. 67401.
MICHAEL CHAPMAN and DEB PARKS, 133 N. Euclid, Sioux Falls, SD 57104. (Last address we have.)
BILL CRAIG, 2949 Marlatt, Manhattan, Ks. 66502.
STAN TIPPAN, 601 W. 86th Terr., Kansas City, Mo. 64114. Stan works as a chemist for Midwest Research Institute. He married Janet Blackwood in December 1985.

Fall 1980

TOM MULCRONE, 10756 Hale, Chicago, IL 60543. Tom has a company called Global Energy Inc. (bread and butter energy conservation for home and light commercial). He consults on solar equipment, energy audits, and conservation techniques.
MELISSA MYER. No word from Melissa since she went to the Peace Corps in Africa.
ED NEWMAN, Rt. Box 275 A, Athens, Ohio 45701. Ed describes himself as a "trash narc." His job is to enforce against illegal dumping, improper solid waste management and littering for the Athens City-County Health Department. Besides enforcement, he has given presentations, organized recycling events, and pressured local leadership to adopt and implement sound solid waste management practices in the county. He was a cofounder of SORT (Southeast Ohio Recy-

cling Terminal), and writes for their newsletter, The SORT REPORT. Ed has purchased almost six acres of land in Athens where he plans to build a house and grow food.

PAUL RASCH, 930 Six Mile NW, Comstock Park, Mi. 49321 (parents' address). Paul graduated from Oberlin College and then won a Shansi Fellowship to do study, travel and service in India. Visa problems sent him to Sri Lanka, then to Nepal where he has worked for World Neighbors on a citrus & apples project. See Land Report 26 for a fascinating letter from Paul describing his experience in Nepal.

DENNIS & ANNIE RONSEE, Kwigillingok, AK 99622. They have been in Alaska teaching high school since they left The Land. They have two children, a boy and a girl, both born in Alaska.

SPRING 1981

MARK BIGELOW and CICI PFINGSTON BIGELOW McGiffert #414, 99 Claremont Ave., New York, N.Y. 10027. Mark finished his degree at the Union Theological Seminary and Cici earned a master's degree at The New School of Social Research in New York City. Anna Seba was born to them in March 1986.

MAKA GROGARD, 12305 Stonehaven Lane, Bowie, Md. 20715. Maka wrote us that she was going to be married, but we've heard no other news.

FRED VOGLER, Rt. 1, Box 105, Barnes, Ks. 66933 (parents' address). Fred sent a card (no return address) from Venice, California, where he attends classes in acting and film making at the Estelle Harman Alley Theatre.

FALL 1981

HILARY HENRY, 5800 Grand, Kansas City, Mo 64113. Hilary sent us a wedding invitation this spring, but we have no other information.

LYNN HIRSCHBERG, (Sontag) 141 N. Walnut, Yellow Springs, Ohio 45387. Lynn married Tim Sontag in November 1985. She is working on a farm and at a nursery school with five year old children.

MARIE RASCH, Rt. 1, Conklin, MI 49403. Marie has been working in her family's fruit business thinning and trimming peach trees this summer. Before that she was traveling and sent us postcards from New Zealand.

"All has been going well round the farm here--learning and doing more all the time, only starved for more biological input...Future plans in work are towards biological approaches to this mass production. Would love to sit on the edge of an orchard throwing predators in the wind!"

JAN RYAN, 4400 N. Turner, Lansing, MI 48906. Jan took training in IPM at Michigan State University and worked as a field scout in orchards. She may work on a masters' degree at Michigan State. She's been playing her guitar with a group that plays Irish music. Jan visited The Land for several days in December.

JEAN STRAMEL, Box 45, Hudson, Ks. 67545. Jean lives on 40 acres of Sand Prairie in Staf-

ford County with an artist. They keep goats, chickens and have a garden. She has taught biology and worked as a park ranger in the Grand Canyon since she left The Land.

SPRING 1982

DEN BERRY, Port Royal, Ky.40058. Den has some land of his own and is farming with his father. "I am planning to stay right here and expand as I can."

NORA KELLEHER, 102 Pheasant Cove Circle, Yarmouthport, MA 02675. A postcard from Italy was the last message we received from Nora.

DANA MCCAIN, 160 A VFW Road, Watkinsville, Georgia 30677. Dana is an office manager for a physician. Her husband Mark is a graduate student at the Univ. of Georgia in music.

BARRY MOIR, 767 Western Ave., Magnolia, MA 01930. Barry works on a carpentry crew building houses. He hopes to save enough money to move westward and "acquire a piece of land to care for."

MARVIN PAULS, 624 Pioneer Ct., Missoula, MT 59801. Marvin received a Bachelor of Fine Arts degree from the University of Montana and has been working on the University grounds crew. He and his wife Patsy, who has been studying French, will travel in Europe this fall.

"I'm also working on my first public sculpture. I submitted a proposal for the Campus Art Awards, and my sculpture was accepted for permanent installation outside the newly constructed Performing Arts, Radio & Television Building. I'm having another company fabricate the major portions of the piece (since I don't have the facilities) and install it. I'm currently building a full scale model so that the selection committee and I can discuss siting. The piece will be about 27 feet tall with two stainless steel triangles hanging from it and set on a bearing so that it will rotate with the directional changes of the wind, thus implementing the issue of kinetic sculpture that I have been dealing with as of late, and the piece also will be directly influenced by the environment. I'm very excited about this permanent public piece. Also, a little scared, but hey, that edge is what makes life interesting.

STU SLOTE, Casilla 635-A, Quito, Ecuador. During his stint in the Peace Corps, Stu has written several fascinating letters about his life in Ecuador where he will be until July of 1987. Stu has been teaching renewable energy technology.

"I may change sites...The new site (is)..the Chota Valley, mostly Blacks who escaped slave boats way back when and ended up in the Sierra. Very hot and dry. Little economy to speak of, so I'd be participating in an interesting project: to fabricate and market solar hot water heaters and hydraulic ram pumps in a Centro Artesanal. The community could sure use some cash inflow... Long term plans? If I can, to continue teaching in Latin America in technical schools on renewable energy technologies."

MARGO THOMPSON, Rt. 2, Box 239A, Hamilton, N.Y. 13346. Margo coordinates a community development grant to renovate low income housing in Hamilton. She takes applications from homeowners, looks at their houses to decide what needs to be done the most, then hires the builders. (She often helps do the jobs too.)

FALL 1982

DENISE ATTWOOD, 6912 N.E. 15th, Seattle, WA 98117. Denise visited The Land after she returned from extensive world travels with her friend Rick. She is now in law school.
ALISA COFFIN, 6351 31st St., N.W., Washington D.C. 20015 (parents' address). Alisa visited in May 1984 on her way to work for the forestry service in Utah. No word since.
CURT LAUB, 1947 Rockingham, McLean, VA 22101.
REGINA GRAVROVAC, RFD, Box 25, Surry, ME 04684. Regina is buying a house in Surry with 10 acres of field and wetland and hopes to do some large gardening. She is running an organic produce delivery system and growing alfalfa sprouts for her routes. She is also an assistant project manager in two counties for a statewide Department of Agricultural (under the Maine Ag Viability Act) project to assess the needs of growers in two counties to help make agricultural more viable. She has a grant from the Maine Organic Farm Organization to do an organic marketing study and is "learning computers."

1983

(Beginning of Feb. to Dec. intern program)

HELEN ATTHOWE, Fruit Substation, Rt. 2, Clarkesville, Ark. 72830. In Fall 1985 when we last saw Helen she was working at the fruit station and taking graduate level classes.
MARK BOHLKE, 520 Fountain, Ann Arbor, MI 48103. Mark visited The Land on September 1, 1986 after spending the summer at the Montana University biological station.
DAVID BURRIS, 115 Giles Road Blacksburg, VA 24060. David works as a lab technician in the soil testing lab at Virginia Polytechnic Institute, his alma mater.
RUSKIN GOULD, 812 E. 12th, Apt. 4, Eugene, OR 97401. After finishing his B.A. in chemistry at the Univ. of Oregon, Ruskin went to work as a research assistant in a biochemistry lab. He is now an electron microscopist and has been perfecting a technique known as immunogold labelling which allows one to visualize specific protein locations within the yeast cell.
But the major focus of Ruskin's life is his commitment to Buddhism. He has been ordained as a lay Buddhist and is now a senior member at the Eugene priory. He has made the commitment to start monastic training at the Shasta Abbey in Mt. Shasta, Ca. beginning in May, 1987.
DEBRA ISRAEL, 179 S. Highland, Ossining, NY 10562 (her mother's address). Debra works with NYPIRG (New York Public Interest Research Group) as a Project Coordinator at SUNY, Purchase.

CARY NAILLING, 224-A Vance St., Chapel Hill, NC 27514. Cary works in a pediatrics genetics lab at the Univ. of North Carolina. She married Chester Copeland August 30, 1986. They are rebuilding a 50 year old cabin on "a run down farm."

TERRY NASH, 100 Caves Hill Rd., Leverett, MA 01054.

JULI NEANDER, 10425 Miller Rd., Utica, NY 13502. Juli works at a shelter for battered women.

ALEXANDRA STONE, Box 51, Montague Ctr., MA 01351. Alex works with the Institute for Community Economics.

WILLOW, 1109 Gypsum Ave., Salina, KS 67401. Willow married Phil Weaver in Salina in May 1985. She attends Bethel College in Newton, Kansas and is a mainstay of the Salina peace community.

1984

PAUL ADELMAN, 3255 N. Ohio St., Arlington, VA 22207. Insufficient space prevents the printing of the amusing letter from Paul Adelman which arrived with the box of Land Institute caps last December. Paul saw an ad in a magazine, produced an Eastern Gamagrass logo, and ordered 100 caps (with 2 free jackets for Wes and Dana) and sent them to us.

Paul worked as a carpenter on Cape Cod for a while, then began assisting his father by researching a legal case in the nation of Guyana in South America. He visited The Land on September 3, 1986.

MIKE BERGHOEF, 1443 Byron SE, Grand Rapids, MI 49506. "I am now half way through my Master's in social work program. So it looks like counseling will be my cash crop to try to finance some land to continue our environmental studies."

JANINE CALSBEEK, P.O. Box 185, Orange City, IA 51041. Janine and Doug are splitting one fulltime reporter job on a local newspaper. They have a large garden and keep chickens.

MARTIN GURSKY, Rt. 4, Box 360, Bedford, VA 24523
"With no apparant niche here (Nova Scotia), we've decided to join forces with former landers, the Martins, and begin what we perceive to be an intentional community structured around sound agriculture...Recently, I've been very much interested in the process of change farmers and communities have to experience before sustainable agriculture can be approached as an alternative." Martin and son Marcus have moved to Virginia where Donna will join them later.
TONY MARTIN, Rt. 4, Box 360, Bedford, VA 24523. Tony and Patsy moved to a small farm with their daughter Angie and were soon joined by a new son, Jake. Tony works the farm and takes care of Jake, while Angie goes to school and Patsy teaches 3rd grade.

"I remember a comment Wes made about how it might take a couple of years to get our "infrastructure" in place and then we'd have it made-or words to that effect.

Well, I know now what you mean by infra-

structure. And it's gonna take more than a couple of years. Especially since we still don't have a clear notion of what we want our "infrastructure" to be like... I guess rather than dream up the ideal infrastructure and drop it in place and go, ours will be an "organic," holistic, evolutionary process. In other words, we'll just continue to muck along and hope we're mucking in the right direction.

And things are improving. I can't help but notice to my satisfaction that things are much easier this spring. There is an order about the place that was not here last year. And I work more efficiently and with purpose--possibilities and priorities are clearer."

DANA PRICE, 2218 Elm, Denver, CO 80207 (parents' address). Dana left The Land on her bicycle early in July to travel around and visit friends before beginning Peace Corps training and an assignment in Zaire. After finishing her internship in 1983, Dana worked as a research fellow at The Land.

KIRK RILEY, 9605 Roseland, Livonia, MI 48150 (parents' address). Kirk was making law school applications in February, but we don't know the outcome. He was working as a part-time organizer for the Michigan Citizens' Lobby, a statewide consumer group.

HEIDI SCHMIDT, Apt. 3rd Floor West, The Shoreham Inn, Shoreham, VT 05770. Heidi is working at a hardy perennial plant nursery.

Getting Yuppies to landscape their building lots with perennial gardens is a way of preserving diversity of wildlife niches, habitats and soil which are rapidly being destroyed by the same old stories of mismanagement of land resources and overdevelopment. Of course, I don't lay all that on them...the key is less maintenance, aesthetics, and higher bird population."

RUSS WYSONG, c/o Paul Wysong, Rt. 8, Columbia City, IN 46725.

ANN ZIMMERMAN, 14 Higgins St., Allston, MA 02134. Ann attends Harvard Law School. She arrived in Salina for summer vacation last May just in time to sing at the Prairie Festival on Saturday evening. She lived in Salina and worked for Legal Services this past summer, then visited her brother in New Zealand.

1985

(These students are the creators of the infamous "BLAND RETORT," a publication of "THE GLAND INSTITUTE," featuring "primitive living at an industrial pace." This publication is NOT available.)

LOIS BRAUN, Small Farm Resources Project, P.O. Box 736, Hartington, NE 68739. Lois is an intern with the Project.

MARY BRUNS, 429 Clark, # 3, Iowa City, Iowa 52240. Mary worked for the Center for Rural Affairs after finishing her internship. She has begun a research assistantship at the University of Iowa studying groundwater protection policies.

DANIELLE CARRE, 1109 Gypsum, Salina, Ks. 67401. Danielle is a research fellow at The Land this year. She is writing a book with Judy Soule and Wes Jackson about the ecology of new crops and their potential role in conserving soil, water and energy resources.

MICHAEL CAVIGELLI and JULI KOIS, Box 52, Whiting, KS 66552. Both Michel and Juli are interns at the Kansas Rural Center. Their major project is to look at the economics of a transition from conventional farming to organic farming.

STEVE ELA, 3142 F Road, Grand Junction, CO 81504 (parents' address). Steve has been working in the family orchards. He is considering applying for the Peace Corps.

CAROL LALIBERTE, 221 Island Lake Dam Rd., Duluth, MN 55803 (parents'). "We are pleased to inform you that Carol Laliberte has been awarded a Thomas J. Watson Fellowship for 1986-87...I would like to thank you for taking your time to write a recommendation for the candidate.."

All at The Land were pleased to be informed about Carol's fellowship. She applied last fall while at The Land, then returned to College of the Atlantic to complete her B.A. degree. This summer she began her travels, funded by the fellowship, to Europe, India and Japan to study Fukuoka type farming systems.

JOHN RICHARDS LAATSCH, 1458 Mishlor Rd., Huntington, Indiana 46756. John, Lynda, Logan and new son Benjamin Charles (May 14) live on a farm with 110 tillable acres and 50 acres of woodlot. They hope to begin producing fruits and vegetables for local consumption as soon as is economically feasible. John works for the Weaver Popcorn Company.

"I call on growers, inspect for problems (insects, weeds, development) and mainly supply information to forecast yields. Talking to growers and seeing the fields is quite an experience! Lots of chemically sterile fields (resembling artificially green plants growing out of cement) and lots of chemical overuse (herbicide damage, nitrogen burn). But hey, at least it's not feeding the beef and pork machines, and I've never known a weenie arm who doesn't eat popcorn with brewers yeast and tamari on it!"

VERNON STIEFEL, 1107 Gypsum, Salina, KS 67401. Vern manages the Great Plains Bicycle Shop on S. Santa Fe in Salina. He and Elisa have a daughter, Jenna Mae.

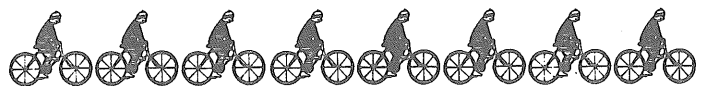
HOLLY WINGER, 702 Hopkins, Apt # 5, Poteau, OK 74953. Holly works at the Kerr Center for Sustainable Agriculture.

1986

PATRICK BOHLEN
BRAD BURRITT
MICHAEL COLLINS
MARK GERNES

ROB PETERSON
DENNIS RINEHART
MELISSA SARLAT
MARK SLATER

GUY GRIGSBY, 8 Forsythe, Longmont, CO 80501
(Guy resigned his internship in May)



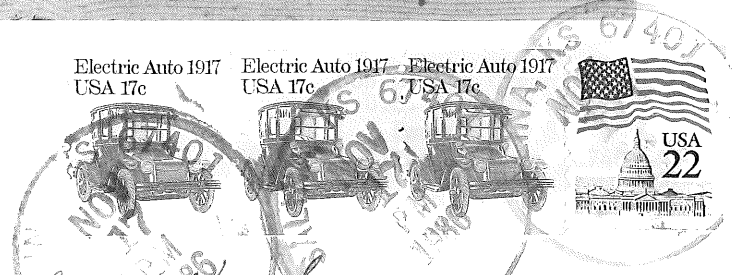
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John Thelander

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*Elizabeth Vogt
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Kansas State University
Manhattan, Ks 66506*

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The Land Institute is a private, educational research organization. In recent years, several private foundations have awarded grants for special programs. These would not have been made if The Land had not shown a record of broad-based support from individuals who make annual contributions. Continued financial support from Friends of The Land is vital.

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