

# ZUNI FARMING FOR TODAY & TOMMOROW

*An Occasional Newsletter of the Zuni Sustainable Agriculture Project*

*No. 1, Spring 1993*

## **The Zuni Sustainable Agriculture Project**

*by David Cleveland and Daniela Soleri*

From gardens and fruit trees to irrigated hay fields and rainfed corn fields, there are many different kinds of farming, and many different kinds of farmers, at Zuni today. Zunis have been farmers in the area of the present Zuni Reservation for over 1,500 years, and are famous for their skills and knowledge about farming under the difficult conditions at Zuni. Floodwater irrigation of folk crop varieties in this dry area has been the core of Zuni farming. During the last several generations, however, there has been a reduction in farming, and a reduction in area farmed, from 10-12,000 acres in the mid 1800s to about 1,000 today. However, there is now renewed interest and commitment by the Zuni people in revitalizing agriculture. The purpose of the Zuni Sustainable Agriculture Project is to support the community in this effort.

### **Farming for Today *and* Tomorrow**

The phrase "sustainable agriculture" is used a lot these days when people talk about improving farming. This is true not only in the United States, but around the world as well. While there are different definitions, the following one seems most appropriate for Zuni. Sustainable agriculture means farming in ways that provide a good return for farmers' work today, while protecting and improving soil, water, crops and other natural resources for future generations, that is for our grandchildren, their grandchildren, and so on. It also means that local people and their communities are in control, and that farming is based on their cultural values, and benefits them economically, nutritionally and socially. What this  
*see ZUNI, Page 2*

## **The Nutria Pilot Project**

*by the Zuni Sustainable Agriculture Project  
and the Nutria Irrigation Unit*

In November of last year, the Zuni Conservation Project began the Nutria Pilot Project. The purpose of this project is for the components of the Conservation Project to gain experience in working together to plan for natural resource management by focusing on one limited area, instead of the whole of Zuni land. Results from the Pilot Project will  
*See NUTRIA, page 4*



*Preparing to Map Nutria Fields. Stan Lallo (second from left) instructs Donald Eriacho, Andrew Laahy, and Fred Bowannie, Jr. on use of the GPS. Photo by D. Cleveland*

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*ZUNI, from page 1*

all means is "farming for today and tomorrow."

The development of "modern" industrial agriculture, has brought great increases in the supply of food. The scientific knowledge and many of the technologies of modern farming are essential for building sustainable agriculture. However, modern farming the way it is often practiced is not sustainable. The soil, water, and other natural resources needed for our own and future generations are being destroyed.

For example, in the United States, salt build up is lowering yields on 25-30% of irrigated land, and about 20% of irrigated land is watered by pumping out groundwater faster than it is replaced. About 7 tons of topsoil per acre are being lost to wind and water erosion every year on U.S. cropland. Approximately 500,000 tons of 600 different types of pesticides are applied annually in the United States. In general, there is a return of \$4 in crops saved for every dollar spent on pesticide control. However, if you could subtract the costs of pesticide poisonings and illnesses of humans, fish and wildlife, destruction of beneficial insects including honey bees which pollinate crops, water pollution, and government regulatory spending, the profitability of pesticides would likely disappear.

Also being destroyed are the family farms and farm communities that have lost control of local resources, and have been left out of national politics. In the United States, almost half the farmland is owned by people who are not farmers, and almost half of our food is produced on very large farms that rely on hired labor.

As more and more people recognize the costs of this kind of farming, there is growing commitment to sustainable agriculture. In the United States, many family farmers and farm communities are fighting to retain their way of life. Agriculture Colleges in many states have sustainable agriculture programs that are trying to reduce inputs such as chemical fertilizers and pesticides.

In many cases, the traditional farming done by small communities is much more sustainable than modern agriculture. That is, even though yields are usually not as high in traditional farming, costs for inputs and the toll on future farming are



*Drying Corn on the Rooftops at Zuni. Photo from the National Anthropological Archives Collection at the Zuni Museum Archives, photographer unidentified.*

much lower. For example, the Zunis were farming here for many centuries before the Europeans invaded. Zuni farmers managed the soil and water resources and their crops in ways that were more sustainable than many modern methods. Traditional Zuni farming also produced abundant, healthy food in most years, and supported Zuni social and religious life. Activities and policies of the United States government over the last century are an important cause of severe damage to Zuni natural resources and the dramatic reduction in farming

This is why developing sustainable farming must build on Zuni farming knowledge, skills and resources, as well as those of other traditional farming communities in the southwest and elsewhere. The challenge, however, is to move forward and not backward. Farming for today and tomorrow includes the most up-to-date technologies, such as laser leveling, sprinkler irrigation, and new crop varieties, where they can be used sustainably.

### **The Zuni Sustainable Agriculture Project (ZSAP)**

The purpose of the first phase of ZSAP is to work with the Zuni community to create a plan for agricultural development that will improve and increase farming in ways that manage natural resources for future generations, are economically profitable, socially equitable, and respect Zuni knowledge and culture. ZSAP's major effort is working with other components of the Zuni Conserva-

tion Project on the Nutria Pilot Project. ZSAP's experience with the Pilot Project, and the plan for Nutria that we produce, will be valuable as the Project and the Zuni community move ahead with more detailed planning for the rest of Zuni land.

This initial planning phase of ZSAP, which ends in October 1993, is funded by the Ford Foundation. It focuses on land, soil, and water management for both rainfed (dryland) and canal irrigated crop production. It includes gardens as well as fields. ZSAP will cooperate with the Zuni Folk Varieties Project (see article on page 9). Both projects are components of the Conservation Project. ZSAP is managed by the Center for People, Food, and Environment, with David Cleveland as Project Director. Donald Eriacho is Assistant Director, and Daniela Soleri also works on the project.

### Community participation and control

Any plan for sustainable agriculture must be based on the needs, desires, resources, and skills of the people involved. Zuni farmers and gardeners, and the Zuni community, are equal partners in the development of the Plan. While outside technical experts are important, the final decisions must be made by the Zuni people. ZSAP cooperates with the Zuni Irrigation Association, a farmer organization which started in April 1992. On the Nutria Pilot Project we are working with the Nutria Irrigation Unit, one of the five units that make up the Zuni Irrigation Association.

We are also working with the community on planning for reestablishing the orchards of Zuni peach folk varieties on Dowa Yalanne (see article page 14).

For ZSAP to really have community involvement it should be staffed as soon as possible by Zunis closely tied to the farm community. The Assistant Director, Donald Eriacho, is being trained during the planning phase of the project to take over as Director in November 1993.

### Education

ZSAP will help the Zuni community to understand the current state of Zuni farming, the key features of sustainable agriculture, and the options for agricultural development. Education also means encouraging recog-

nition of the knowledge and skills of Zuni farmers.

Working with Zuni schools helps spread information on our project. We are giving a series of presentations to a fourth grade class at A:shiwi Elementary School, and have helped students with science fair projects. This class will make presentations on the Sustainable Agriculture Project to the rest of A:shiwi, and perhaps to other schools. We are also cooperating with the Vocational Agriculture Program at Zuni High School. The final Plan will include working with the schools to bring agriculture into all Zuni classrooms.

We will be publishing two more editions of the *Zuni Farming* newsletter in the summer and fall of this year. The purposes of the newsletter are to explain ZSAP goals and activities, to encourage community feedback, and to inform the community about other programs and activities, local, national and international, that affect Zuni farming. Donald Eriacho will also be producing several programs for KSHI radio, and a video on ZSAP.

### Data Collection and Analysis

Based on the resources and values of Zuni, what are the best options for sustainable agriculture? To answer this question, ZSAP is reviewing existing information, collecting new information, and consulting with experts in various fields. Topics include the present condition of farming and resources for farming, farmers' traditional and modern knowledge about crop, soil and water management, ac-



*Zuni Waffle Gardens. Photo from the National Anthropological Archives Collection at the Zuni Museum Archives, photographer unidentified.*

cess to land and other resources, and people's hopes for the future of Zuni farming.

We have made arrangements to work with the Soil Conservation Service (SCS). Deb Prevost, a soil scientist with SCS in Rio Rancho, is helping us in researching, collecting, and analyzing data on soils and land use, and managing soils to increase crop production sustainably. Other SCS personnel are available as needed. Steven Smith, an agronomist and world expert on alfalfa at the University of Arizona, is providing advice on crop and variety selection. We are working out arrangements with Phil King, an irrigation engineer at the New Mexico State University, and Jon Sandor, a soil scientist at Iowa State University, to cooperate with ZSAP. All of these outsiders, as well as others, will be discussing options with Zuni farmers and answering their questions.

### Creating the Plan

A Sustainable Agriculture Development Plan for Zuni will be produced which will contain guidelines for projects to increase farming at Zuni. The Plan will be a flexible guide that can be adapted as new information becomes available and as the Zuni community continues to discuss its desires for Zuni farming. This is why planning won't stop in October 1993, but will always be a part of ZSAP.

We see the Plan as a tool to be used by the Zuni community for a) more detailed planning and policy development, b) assessing the sustainability of proposed agricultural developments, and c) acquiring funding from outside sources. The final project report, which will include background material as well as the Plan, will be published and distributed to the Zuni community and to farm communities and agricultural organizations around the world.

Zuni has the opportunity to take a look at farming and avoid making the mistakes that are destroying both big and small farms in the United States and elsewhere. While the Zuni situation is unique, it shares much in common with other communities in the southwest and around the world. Zunis have much to teach these communities, as well as much to learn from them.

*For more information about the Zuni Sustainable Agriculture Project, contact David Cleveland or Donald Eriacho at the Conservation Project Offices near the Zuni Fair Grounds, or call us at 782-5851/2.*

### *NUTRIA, from page 1*

provide needed experience for planning in other areas of Zuni land, and for implementation after the Plan is completed in October of this year.

We had our first public meeting on the 10th of February, which was well attended, by over 60 people. We will have our next meeting on the 15th of April, and regular public meetings to discuss the development of the plan through this fall.

### The Information Needed for Planning

As part of the Nutria Pilot Project the Sustainable Agriculture Project is working with the Nutria Irrigation Unit, of the Zuni Irrigation Association. Our goal is to develop a plan for increasing and improving farming in Nutria in sustainable ways. To do this we need to collect and analyze several different kinds of information. First, we need to know what farmers' are doing now, and what their goals are for the future. Second, we need to know the kind and amount of resources such as soils, water, crops, labor, and management skills available for farming. Third, information is needed on how these resources will be divided between farming and other



*Inoperable Control Gate, Nutria Diversion Dam Spillway.  
Photo by D. Cleveland*



*Nutria Diversion Dam and Reservoir. Excessive siltation over the years due to the poor condition of the upper watershed has greatly reduced the capacity of the reservoir. Photo by D. Cleveland*

uses, for example how water will be shared between farming, livestock, water fowl habitats, and recreation.

Fourth, we need to understand how possible future farming strategies will affect Zuni cultural values, the quality of Zuni social life, and the natural resources on which future generations of Zuni farmers will depend. For example, how can farming in the Nutria irrigation unit be increased without increasing soil salinity, spoiling the wetlands below the irrigation unit, or making farming more difficult for farmers with gardens or small fields?

We are gathering together existing information on soils and water for both rainfed and canal irrigated fields. We will also collect new information where needed, for example on the condition of the main diversion dam, the amount of water used for irrigation during the growing season, and the effect of soil erosion on rainfed fields. We will be working with other components of the Conservation project, especially Watershed and Hydrology, and Geographic Information Systems. We will also be working with outside experts, including soil scientists, agricultural engineers, and agronomists from the Soil Conservation Service, the University

of Arizona, and New Mexico State University.

### **Working with Farmers**

We are finding out about farming in Nutria and how people want to improve it. Fred Bowannie, Jr. and Andrew Laahty, President and Vice President of the Nutria Irrigation Unit, have begun talking with all of the households who have rights to farming in Nutria. This includes rainfed and canal irrigated fields. If you are one of these families, we will be asking you questions about how you have been farming, what your problems are, and how you think they

could be solved. All answers are confidential. A copy of the interview we are using is on pages 6-7.

We will also work with you this summer to establish field boundaries and land use rights. Stan Lallo of the Geographic Information Systems component of the Conservation Project has begun training us in the use of the Global Positioning System (GPS) equipment for surveying. The GPS receives signals from satellites to help us locate the position of fences, canals, and any other landscape features for mapping. We will try to have as many families

*See NUTRIA, page 8*



*Nutria farming area. The line of trees next to the road marks the ditch that was cut when the dam breached in 1970. The line of trees behind it is the main channel of the Rio Nutria. Behind that is the village of Upper Nutria. Photo by D. Cleveland*

ZUNI SUSTAINABLE AGRICULTURE PROJECT & NUTRIA IRRIGATION UNIT, SURVEY #1

NAME \_\_\_\_\_ DATE(d-m-y) \_\_\_\_\_ INTERVIEWER \_\_\_\_\_  
NO. OF INTERVIEWEE \_\_\_\_\_ NO. OF HOUSEHOLD \_\_\_\_\_ P.O. Box \_\_\_\_\_ Telephone # \_\_\_\_\_

1. How many people normally live with you in your house? \_\_\_\_\_
2. Some Zuni families have farmlands that are not being used. Should those fields be farmed?  YES  NO
3. Some Zuni families want to farm but do not have land. Do you think that farmland should be provided for them?  
 YES  NO [If YES, continue, NO go to #5]
4. Who should provide the land?  Tribal Council  BIA  Zuni Irrigation Association  families  
 other \_\_\_\_\_
5. Who do you think should settle land disputes?  Tribal Council  BIA  Zuni Irrigation Association  
 families  other \_\_\_\_\_
6. Who do you think should decide the order of irrigation?  Tribal Council  BIA  Zuni Irrigation Assoc.  
 families  other \_\_\_\_\_
7. Do you think traditional Zuni knowledge of farming is useful for Zuni farmers today?  YES  NO
8. Why? \_\_\_\_\_
9. Would you like your children and grandchildren to farm?  YES  NO
10. Do you think that they will farm?  YES  NO
11. Why? \_\_\_\_\_
12. What are the biggest problems facing farmers in Nutria today? What do you think is the best way to solve them?  
Problem #1 \_\_\_\_\_ Solution #1 \_\_\_\_\_  
Problem #2 \_\_\_\_\_ Solution #2 \_\_\_\_\_  
Problem #3 \_\_\_\_\_ Solution #3 \_\_\_\_\_  
Problem #4 \_\_\_\_\_ Solution #4 \_\_\_\_\_
13. Does your household own livestock?  YES  NO  goats  sheep  cattle  other \_\_\_\_\_  
[If YES continue, If NO, go to 16]
14. Where do you graze them?  Nutria  elsewhere, not in Nutria  elsewhere and in Nutria
15. Do you ever graze them in your fields at Nutria?  YES  NO
16. Would your household like to plant fruit trees or grapes at Nutria?  YES  NO [If YES continue, if NO go to 18]
17. What kinds? \_\_\_\_\_
18. Does your household farm or garden at Nutria now (rainfed or canal irrigated)?  YES  NO
19. Has your household farmed or gardened (more) at Nutria in the past?  YES  NO
20. When did your household stop (or reduce) farming or gardening at Nutria? \_\_\_\_\_
21. Why? \_\_\_\_\_

*This is a copy of the questions Nutria farm families are being asked by the Nutria Irrigation Unit and the Zuni Sustainable Agriculture Project*

22. Would your household like to farm or garden (more) at Nutria? YES NO

23. What prevents your household from starting to farm or garden (more) at Nutria? \_\_\_\_\_

24. What would be the best way to overcome this obstacle? \_\_\_\_\_  
[If answer to #18 was "NO,"Go to #31.

25. How many people in your household are actively farming or gardening at Nutria? \_\_\_\_\_  
[COMPARE ANSWER TO QUESTION # 1]

26. What farm and garden machinery does your household use at Nutria \_\_\_\_\_

27. Which of these does your household own? \_\_\_\_\_

28. Does your household sell any of the crops you grow at Nutria? YES \_\_\_\_\_ (crops); NO

29. Does your household intend to continue farming or gardening at Nutria? YES NO

30. Why? \_\_\_\_\_

31. Is your household a member of the Nutria Irrigation Unit of the Zuni Irrigation Association? YES NO

32. Why did you join or not join? \_\_\_\_\_

33. Is your household a member of any other of the Zuni Irrigation Units? YES NO

34. What do you think the Nutria Irrigation Unit should be doing? \_\_\_\_\_

35. Can you name all of the fields, gardens, and orchards that your household has rights to use in all areas of Zuni?

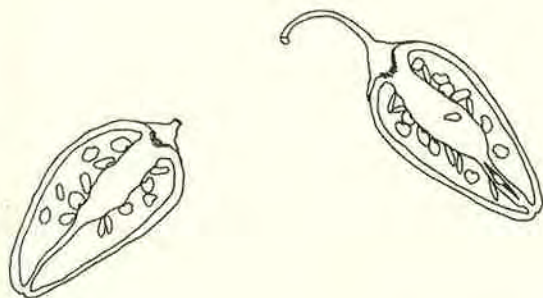
Field, garden, orchard #	1	2	3	4
Location				
Last year farmed				
Size				
Persons farming				
Water source				
Crops usually grown				

*NUTRIA, from page 5*

with claims in each area of Nutria present when we do the survey. At that time we will also be asking you more detailed questions about soil, water and crop management, and your ideas for improvement.

Later this summer we will use the information gathered to put together a plan for increasing and improving farming at Nutria. Nutria farmers, in consultation with the rest of the Zuni community, will make the final decisions on the plan for Nutria.

One of our goals is to set up methods for farmers to regularly check the condition of their soils, water, and crops. This will not only be important for planning, but will help all of us to see the effects of changes in farming. It will also help to put farmers in control of the information they need to change the plan as time goes on.



***Open Meeting - Nutria Pilot Project***  
***8:00 PM April 15,***  
***Tribal Assembly Room***

*The Zuni Sustainable Agriculture Project and the Nutria Irrigation Unit have organized a meeting for all interested community members to discuss recent activities of the Nutria Pilot Project, and plans for future work.*

*Staff will be available from the:*

*Zuni Conservation Project  
Zuni Sustainable Agriculture Project  
Watershed and Hydrology  
Geographic Information Systems*

*Zuni Irrigation Association  
Nutria Irrigation Unit*

*Soil Conservation Service  
Soil Science  
Engineering*

## ***The Zuni Conservation Project***

*by Jim Enote, Zuni Conservation Project*

The primary mission of the Zuni Conservation Project is to create an approach for the Zuni Tribe to efficiently use Zuni resources today, and to maintain or improve those resources for future generations. This approach will be described in the Zuni Sustainable Resource Development Plan, to be completed in October 1993. In 1994 the Conservation Project will begin implementing the Plan.

### **Project Components**

To create the plan, the Conservation Project is organized into the following components:

- Watershed and hydrology, to evaluate and assess erosion on the reservation and plan for watershed rehabilitation.
- Fish and wildlife, to inventory, monitor, protect, and plan tribal fish and wildlife resources based on Tribal needs.
- Geographic information systems, to store information and produce maps for the Project.
- Anthropology, to interview Zunis, understand Zuni land use strategies, and promote review by the Zuni Cultural Resource Advisory Team to assure cultural appropriateness in the final plan.
- Conservation, to inventory range and soil conditions, map land use areas, and promote land conservation among Zuni land users.
- Forestry, to develop woodland resource inventories and sustainable forest development plans based on Zuni needs.
- Youth, to involve youth in environment and development in the Zuni community.
- Socioeconomics, to study and define the economic influences of Zuni natural resources to Zuni society and Zuni environment and development issues.
- Sustainable agriculture, to work with the community to plan for agricultural development which conserves natural resources and is based on Zuni knowledge and values.
- Administration, to provide management support services for the Project and administer Project grants and budgets.
- Project leadership, to provide management and advocacy while serving as Tribal authority for environmental and land use issues.



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## Community Participation

Past plans in Zuni and other areas often were not made with enough community participation and so did not include the opinions of both young and old, men and women, and land users and non-land users. Therefore, the Conservation Project intends to develop the plan based on what Zunis see as important. We will do this by talking with many tribal members to understand Zuni attitudes towards resources and how they use them. We will also work to understand where and how much of the resources there are and how these resources affect each other.

## Role of Sustainable Agriculture

With the inclusion of the Zuni Sustainable Agriculture Project within the Conservation Project, areas such as farming, fish and wildlife, grazing, and erosion control can be discussed at the same time. For example, since farming and fishing are both important to Zunis, it makes sense that people involved in these activities work together to make sure there is enough water for both.

The Zuni Sustainable Agriculture Project is an extremely important part of the Conservation Project since agriculture is so much a part of Zuni culture and contributes to nearly every Zuni household's lifestyle, diet, and budget. Therefore, the Conservation Project involves agriculture in every proposed resource idea or solution because agriculture has been the foundation for Zuni sustainability in the past and with good planning will continue to be far into the future.

*As Project Leader, I invite the Zuni community to become more involved in the Conservation Project. You can visit us in our offices near the Zuni Fair Grounds, or call us at 782-5851/2.*

## The Zuni Folk Varieties Project

*by David Cleveland and Daniela Soleri*

Would you like to grow more old Zuni varieties of crops in your field or garden? How do Zunis develop and maintain their folk varieties? What opportunities are there for selling some Zuni folk varieties? How can folk varieties be protected for use by future generations of Zunis? The Zuni Folk Varieties Project addresses all of these questions.

Zuni folk varieties include varieties of ancient Native American crops like corn, beans, and squash. They also include Spanish introductions from Europe, Asia and Africa, like peaches, wheat and watermelons, that have been adapted over centuries by Zuni farmers. In addition, recently introduced varieties may be in the process of becoming folk varieties. Folk (or traditional) crop varieties have been selected by generations of Zuni farmers and the environment to be well adapted to growing here.

In recent generations, as Zuni farming declined, and as remaining Zuni farmers and gardeners planted more commercial varieties bought from mail order suppliers, stores, and nurseries, Zuni folk varieties began to disappear. Although new folk varieties and modern varieties are useful, existing folk varieties have an important role to play in sustainable Zuni agriculture. Because they are adapted to the climate and soils of Zuni, they can produce good crops without chemical fertilizers or pesticides, and with a minimal amount of water. They are also important in making traditional Zuni foods, and in Zuni ceremonies.

## The Zuni Folk Varieties Project

The Zuni Folk Varieties Project has recently been funded through October 1993 by grants totaling \$40,000 from the Jessie Smith Noyes Foundation of New York, and the C.S. Fund of California. The goal of the Project is to work with the Zuni community to better understand the role of folk varieties, to increase their use, and to make sure that Zunis control their folk varieties in the future.

The Folk Varieties Project builds in part on the Zuni Traditional Crops Project carried out by Carol Brandt (ZAP), with the help of Jerome Zunie, in 1991. That project asked 50 Zuni farmers about seed of Zuni folk varieties they were still growing, and accepted donations of seed to begin a seedbank. That project increased interest in a community seedbank, and raised questions about the future of Zuni folk varieties and how to safeguard them.

The Folk Varieties Project will be managed the same way as the Sustainable Agriculture Project and will cooperate closely with that project. David Cleveland is Project Director, Donald Eriacho is Assistant Director, and Daniela Soleri and Sue Lobo (CPFE) will also work on this project. Steven Smith, a crop breeder and agronomist at the University of Arizona, will be among the project consultants. We have also contacted lawyers specializing in helping local groups protect their traditional heritage. A

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Farmer Community Seedbank Board will be set up to take over direction of this Project by this November. Carol Brandt will help with transferring the existing seedbank to the Board.

The activities of the Zuni Folk Varieties Project are in four areas: education, increasing the availability of folk variety seeds, increasing the planting and diversity of folk varieties, and establishing Zuni control over folk varieties.

### **Education**

One project goal is to increase the knowledge of folk varieties and their role in sustainable Zuni farming, especially among younger farmers and future farmers. We will first work with a few interested farmers and gardeners to document how Zunis maintain their folk varieties by their planting and cultivation techniques, seed selection, seed storage and seed sharing. We will involve Zuni school students in this documentation where possible.

Based on this documentation, we will work with Zuni farmers and the community to create educational materials. This will include a newsletter, school curriculum materials, a pamphlet on seedsaving and other folk variety management strategies, and possibly radio programs for broadcast on KSHI.

### **Increasing the availability of seeds.**

Our goal is to make all Zuni folk varieties available to any Zuni who wants to plant them. We will expand the inventory of Zuni folk varieties, building on the preliminary survey of 50 farm families completed as part of the Zuni Traditional Crops Project in 1991. We will also work with interested farmers to create a Farmer Community Seedbank Board to manage the Seedbank. The purpose of the seedbank will be to provide small amounts of start-up seeds of Zuni folk varieties to Zuni farmers who can then save their own seeds for future planting. It will also serve as a back-up in case of a loss of seed due to several years of crop failure.

The main way in which we will make seeds available is by encouraging farmers to grow and share folk varieties.

If they are located elsewhere we can ask that a sample be returned to Zuni so that people can grow them here again. We have recently made a request to the U.S. Department of Agriculture's National Genetic Resources Program to do a search for Zuni folk varieties that may have been removed from Zuni in the past and presently being stored else-

where, for example in the National Seed Storage Lab in Fort Collins, Colorado. They have already located seeds of several varieties. We will try to locate seeds of Zuni varieties that can no longer be found here.

### **Increasing the planting and diversity of folk varieties.**

Our goal is to encourage more farmers to grow more Zuni varieties. We will distribute educational material on seed saving and other techniques for maintaining folk varieties to farmers, especially young and beginning farmers. We will make sure that the use of Zuni folk varieties is included in the Sustainable Agriculture Project and the Conservation Project.

We will also work with interested farmers to explore opportunities for commercial production of folk varieties and sales of food products made from them, at the individual, cooperative, and Tribal levels. This will include seeking advice from other tribes who have successful commercial operations, and reviewing existing market studies and benefit/cost analyses, as well as trademark options.

We will also work with outside experts to document the genetic health of blue corn, probably the most important Zuni folk variety. We will explore opportunities for protecting and improving the genetic health of folk varieties through farmer selection and maintenance.

### **Establishing Zuni Rights Over Folk Varieties.**

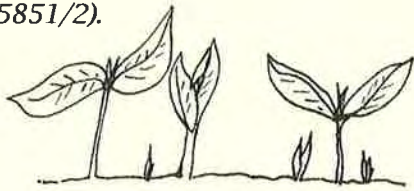
Our goal is to help develop policies to safeguard these folk varieties for the development of sustainable Zuni agriculture. The Folk Varieties Project will be breaking new ground as we work with members of the Zuni community, the Zuni Irrigation Association, and the Tribal government to formulate new policies for protecting Zuni folk varieties.

Policy options will cover 1) the collection of seeds at Zuni by outsiders, 2) the distribution of seed from the Zuni seedbank, 3) the use of Zuni folk variety seeds already removed from Zuni, and any that may be taken in the future, in regard to genetic manipulation, patenting, or commercial sales, and 4) the use of Zuni folk variety names, and other Zuni cultural symbols, in connection with the marketing of Zuni seeds or food products.

We will also work with the Farmer Community Seedbank Board to help them prepare to take over control of the Community Seedbank by the end of the project. This will include workshops and visits to other projects.

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Anyone interested in finding out more about the project, in donating seed of Zuni folk varieties to the seedbank, or serving on the Farmer Community Seedbank Board, contact David Cleveland or Donald Eriacho at the Conservation Project office (782-5851/2).



## **The Zuni Irrigation Association**

*by Donald Eriacho*

In the spring of 1992 the farmers from all five farming districts formed the Zuni Irrigation Association (ZIA). They did this because of the vast problems of each of the units, and because farmers' needs were not being met. At duly called meetings of each of the farming communities, nominees were voted on for a term of two years. On 8 May the Zuni Tribal Council passed a resolution stating that it

“recognizes and approves the Zuni Irrigation Association.”

The purpose of ZIA is to insure that all the valued resources of the tribe will be protected for our future generations, because without them, the Zuni people will not survive and sustain themselves. ZIA will do this by working with the farmers and with other tribal organizations such as the Zuni Conservation Project, Zuni Sustainable Agriculture Project, Zuni Archeology Program, and the Zuni Tribal Council.

### **Membership Fee**

The annual membership fee for ZIA of \$25 that the Units have been collecting is not for the water, but for the maintenance and use of the water delivery system which brings water to the farm fields. This money is to be used by each unit to build other conveyances, or for installing turnouts or shutoffs on pipelines or ditches. At present, only farmers with irrigable land are asked to pay the fee.

It was decided by ZIA that if a farmer irrigates with rainfall runoff and does not use the conveyance system that he/she will not be accessed a fee until a conveyance is installed to his/her fields. However, all rainfed (“dryland”) farmers, as well as gardeners



*Spring Ditch Cleaning. Photo from the National Anthropological Archives Collection at the Zuni Museum Archives. Photo by O.C. Haven*

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are encouraged to join the ZIA Unit in their area, because there is strength in numbers, and this will be for the betterment of each unit.

### **Spring Work Days**

With warming spring weather, the ZIA officers and members of all five Irrigation Units have been scheduling their work days at unit meetings. Work will concentrate on problem areas such as open ditch lines, existing pipelines, burns in fields and ditch banks, and fences. These are the days that the members get together and get reacquainted with each other, catch up on news from the past winter, and exchange ideas for the planting of crops soon to be undertaken.

The Pescado Unit had their first meeting of the season on the 18th of March when workdays were scheduled for the weekends of the 21st and 28th of March. A total of 19 members reported for work on the 21st. They worked on installing a shutoff at Mr. Ira Bowannie's field. They also worked on the spillway on the north side of the Highway 53 bridge, where a cut was starting around the east end. Several loads of malpais rocks took care of the problem for that day.

### **Irrigation Unit Officers**

The current officers for the five Irrigation Units are listed below. The next election will be in October 1993.

**Ojo Caliente:** Edison Lasilute, President; Ernest Mackel, Vice-President; Jerrald Tsalate, Secretary/Treasurer.

**Tekapo:** Paul Leekity, President; Herman Paloma, Vice-President; Lowell Panteah, Secretary/Treasurer.

**Zuni Village:** Griffin Tsabetsaye, President; Ernest Mackel, Vice-President; Henry Yawakie, Secretary/Treasurer.

**Nutria:** Fred Bowannie, Jr., President; Andrew Lahty, Vice-President; Andrew Lonjose, Secretary; Philbert Acque, Treasurer.

**Pescado:** Donald Eriacho, President; Stewart Quandelacy, Vice-President; Samuel Quam, Secretary; Dickie Quandelacy, Treasurer.

The officers of the irrigation units serve as ZIA committee members. The committee members in turn elect a Board of Directors. Currently the Board of Directors is Ernest Mackel, Director, Henry Yawakie, Assistant Director, and Griffin Tsabetsaye,

Secretary. The ZIA Committee meets in the Tribal Building Assembly Room at 7pm the first Monday of each month.

### **By-Laws of the Zuni Irrigation Association**

The following by-laws were approved by a majority vote of the Zuni Irrigation Association members at a meeting on 30 April 1992 at which 62 members were present.

#### **PREAMBLE**

*We, the members of the Ojo Caliente, Tekapo, Zuni Village, Nutria and Pescado Irrigation Units, here after called the Zuni Irrigation Association, in order to establish a responsible union; to promote the general welfare; protect; maintain through co-operative effort; promote security; harmony; and to provide law and order for ourselves and our children, do hereby establish and adopt this instrument and regulations.*

#### **ARTICLE I - MEMBERSHIP**

*Any person(s) who is a member of the Pueblo of Zuni, within any organization, using irrigation water for the purpose of irrigating lands under cultivation conveyed through the five irrigation units, now or in the future, are recognized members of the Zuni Irrigation Association.*

#### **ARTICLE II - OFFICERS AND ELECTIONS**

*(a) Officers shall consist of President, Vice-President and Secretary/Treasurer. Elections shall be held every two years in secret ballot no later than the last week of October. The election shall be conducted in an orderly method by the unit members. The elected officer's term shall expire whenever new officers are installed. No officer shall succeed her/himself, however he may be elected to another position. Should any elected officer refuse to accept or decline an elected position, members and elected officers will request a statement of reason for the file as the decision is made official. Meetings for election of officers shall be called by the President. All Zuni Irrigation Association members shall attend meetings called by the President, otherwise, they will be classified as delinquent and proper steps shall be taken*

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by the President to correct such delinquencies.

(b) An elected Board of Directors will serve as the Board of the Directors for the Zuni Irrigation Association.

(c) A Director, Assistant Director and Secretary will be elected by the committee members. Term of office will coincide with elected officers term.

(d) After the officers are elected, they are authorized to request assistance from the Bureau of Indian Affairs, to maintain and repair roads, bridges and water conveyances within the irrigation units.

### ARTICLE III - OFFICER'S DUTIES

(a) It shall be the duties and responsibilities that all elected officers oversee the complete maintenance of the irrigation section to enforce all the rules contained in these by-laws. Each Officer will assure, that water is distributed equally to all users, that water conservation is practiced at all times, and that all members are notified for work or meeting in ample time, advance notice will be given to each member.

(b) Should there be any changes or extensions of the main irrigation ditch line which will benefit the users in irrigating purposes, officers will request in writing to the BIA, for assistance in conducting surveys, archaeological clearances and environmental assessment before major construction and prior to the irrigation season.

(c) All cleaning and maintenance work on the five units will be determined by the Officers through out their term.

### ARTICLE IV - WATER DISTRIBUTION

The officers shall oversee that the available water is properly used and that it is distributed equitably. The distribution schedule of water during normal conditions will be as follows:

(a) Irrigation must be used as scheduled, unless change by agreement is conducted.

(b) Other water users within the same schedule will all be notified of any changes.

(c) Proper, equal, water useage management will be practices at all times.

(d) Water available will be used with-

out rotation on Sunday.

### ARTICLE V - EXEMPTIONS AND DELINQUENCIES

(a) Widows are exempt from ditch maintenance except in cases where they have family members or person(s) who are of age to be eligible to perform the work.

(b) The officers may recommend any member who has reached old age, or for any health reason be exempted from work.

(c) Delinquencies are defined as those members who fail to take part in duly-assigned ditch work and those who fail to attend an announced, scheduled meeting. Members may be excused from these delinquencies in case of an emergency, i.e., accidents, sickness, or under any circumstances beyond their control, provided notification is made to the Officers. Roll call will be taken at all meetings.

(d) All delinquencies shall be fined \$20.00 dollars per day for missed ditch work and \$5.00 dollars for failure to attend a scheduled meeting. Maximum violation is no more than two consecutive failure to show-up for ditch cleaning and failure to attend a regularly scheduled meeting. Membership will be cancelled if payment is not received. Membership may be reinstated upon payment of delinquent fines and a reinstatement fee of \$25.00. The Secretary/Treasurer will issue a statement of violation for the President's signature. The member will sign and return the carbon copy for official file.

(e) Money collected from delinquency payments shall be deposited in a banking institution under the name of each unit organization.

### ARTICLE VI - THE FUND

(a) Each officer and member will pay \$25.00 dollars per unit per annum which will be deposited in a separate bank account. This will be for the purpose of ESTABLISHING AN OPERATING FUND. An additional levy may be imposed in case of emergency.

(b) The Secretary/Treasurer of each unit shall have the authority to accurately maintain the funds in a banking institution. Each Secretary/Treasurer is authorized to utilize funds for payment of bills and ex-

penses made by the Officers during their term of office, but shall give a full and accurate account of all transactions drawn against the unit's funds. This report is to be given on the call of a meeting and/or prior to diverting water into the system. Two signatures, with one alternate, from each unit will authorize each check.

## ARTICLE VII - RESPONSIBILITY OF MEMBERS

(a) It will be the responsibility of each member to practice good water conservation.

(b) Members, while irrigating, will maintain a vigil to make sure they do not waste water and do not leave the water checks unattended. A member will be held solely responsible for any damage as a result of his negligence.

(c) Members will be responsible for all turn-out gates and supply ditch lines to irrigating lands. Any vandalism occurred on irrigating lands must be reported to the committee officials.

(d) An access right-of-way for canal maintenance will be provided on both sides of the canal and will be solely for this purpose.

(e) Be it also understood that all Zuni Irrigation Association members be recognized and eligible to serve in an officer's position while maintaining membership of the organization. This eliminates repeated nomination for a certain few individuals who have functioned in this position for long periods, restricting members who have not served in this capacity to perform the responsibility as members of the organization.

(f) Officers who fail to perform their duties may be removed from office by the Unit committee. A special election will be held to fill the vacant position(s).

## ARTICLE VIII - AMENDMENTS TO BY-LAWS & REGULATIONS

The Zuni Irrigation Association By-Laws and Regulations shall be amended as necessary.

(a) Each irrigation unit shall have the right to make an amendment in written draft for the unit they are a member of, within the scope of the By-laws.

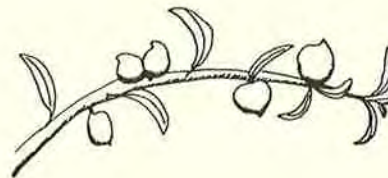
(b) The irrigation unit President will present the amendment to the Board of Directors and the elected officials of the committee for their review and comments.

(c) The Association shall then approve or disapprove any or all amendments as presented by majority vote.

## ARTICLE IX - LIVESTOCK ON IRRIGATION UNITS

Livestock will not be permitted on the five irrigation units as specified by Tribal Ordinances and/or Tribal Resolutions.

Thanks to Ernie Mackel, Director of the Zuni Irrigation Association Board of Directors, for providing some of the information used in this article.



## Zuni Peach Orchards

by David Cleveland with Lygatie Laate

Orchards existed in many places on Zuni land. The largest ones were usually on the sides of mesas where they received natural runoff from surrounding areas, and where there is sandy soil and cold air drainage. The largest Zuni orchard was at the now abandoned village at Heshoda Yalla at the base of Twin Buttes, where over 400 acres were planted. A few older Zunis were still living there in the 1890s. Other large areas of trees were the northeastern area of Dowa Yalanne and Pia Mesa. Smaller orchards were located on the sides and bottoms of small arroyos entering the Zuni River flood plain.

Peaches originated in China, and were introduced to Europe through Western Asia, where Iran is located today. They were first brought to Zuni by the Spanish, probably in the 1600s. Peaches are the most commonly grown fruit trees at Zuni, but apricots, apples, plums, and grapes have also been grown and were first introduced by the Spanish.

Outsiders have often admired Zuni peach trees and have left some written descriptions of them. Stevenson noted at the turn of the century that peach trees were short with many three feet tall or less, but were "laden with fruit" every other year. At that time all the families with orchards had members living in "temporary huts or permanent

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structures until the fruit is gathered, in many instances until it is dried." Green peaches were cooked and sweetened, ripe peaches eaten, and "large quantities" were dried for the winter.

Vorsilla Bohrer visited Zuni in 1956 and 1957, and wrote that the trees "are said to be hardier and more insect-resistant than later introductions." However, only a remnant of the older peach orchards, located on the south side of Dowa Yalanne where the Spanish first introduced them, were left.

### **The Dowa Yalanne Orchards**

We hiked up the eastern slope of Dowa Yalanne last October to see the old peach orchards. The area is now covered with junipers and the dead trunks and stumps of peach trees, none of the peaches are alive here. There are also the remains of many stone summer houses, now used for shelter by shepherds who bring their flocks here to graze. In other areas of Dowa Yalanne there are still a few living peach trees, and there are some in a few orchards in other parts of Zuni land.

Older Zunis have told us that one way to plant peaches is to freeze the pits two times during the winter before setting them out in March. Others have described burying the pits in buckets during the winter, then planting the sprouted seeds in the spring. Seedlings have to be protected from animals, especially sheep. Older trees need to be pruned and their roots protected so they are not exposed by wind blowing the soil away from them.

Lygatie remembers that in 1928-29 there were about 14 families still actively taking care of orchards on Dowa Yalanne, living in stone houses in the summer to protect the ripening fruit, and again in October to pick, and to dry some of it for transport by wagon to the village. People made berms to help direct rainfall runoff to irrigate the trees. Zuni peaches were an important food in those days. Old varieties of Zuni peaches included white and yellow, cling and freestone varieties.

In the orchard that Lygatie and his wife tended, there was one tree alive until a few years ago. There is a rusty bucket in this orchard that they used to carry peach pits back to the village. The old road is still visible and usable in many stretches, but in others has been washed out.

### **Reestablishing the Peach Orchards**

The Zuni Sustainable Agriculture Project (ZSAP) is beginning to plan for the reestablishment of the peach orchards on Dowa Yalanne. We had a meeting

on 11 February which about 15 people attended, including representatives from the Zuni Irrigation Association and the Zuni High School Vocational Agriculture program. We agreed that ZSAP would continue to contact all the families who had trees on Dowa Yalanne, and would begin working on a draft proposal for funding. Lygatie and Donald Eriacho, ZSAP Assistant Director, are now trying to talk with families to find out their ideas and get them involved in planning. We are asking the following questions.

- When did your family last tend their trees on DY?
- Who was the last person in your family to tend the trees there?
- When did your family last harvest fruit from the trees at DY?
- What kinds of peaches or other fruit trees did your family grow?
- How did your family plant the trees?
- How did your family care for the trees?
- Did your family have a rock field house?
- Where was your family orchard located?
- What member of your family is now responsible for the orchard?
- Following are some of the ideas we have started to talk about. If we can agree on what we want to do, then we can write proposals for money to carry out the project. What do you think about these ideas?
  - a. Mapping the area (field houses, dead trees, roads, trails, springs).
  - b. Using the map to reach agreement on the areas each family has rights to, and mark these on the map.
  - c. Rebuilding the old road, and perhaps making new roads.
  - d. Fencing to protect the orchard from sheep and vandals.
  - e. Building of berms and other structures to channel rainfall runoff to the trees.
  - f. Development of springs and seeps for supplementing water for the trees.
  - g. Finding seeds for traditional Zuni peaches to plant at DY.
  - h. Working with Zuni school students on projects at the peach orchards.

*We invite anyone who remembers their family peach trees at Dowa Yalanne to contact one of us, or Donald Eriacho, at the Zuni Sustainable Agriculture Project, 782-5851/2.*

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## ***Sustainable Agriculture Workshop in Albuquerque***

*by David Cleveland and Donald Eriacho*

On last December 11 we participated in a workshop in Albuquerque called "Opportunities in Sustainable Agriculture: Promoting Successful State Programs." Overall, the workshop emphasized that "sustainable agriculture" means sustaining human communities and their values, in addition to conserving natural resources. It included speakers from New Mexico and other states, panel discussions, and small working groups. The workshop was sponsored by the New Mexico Organic Commodity Commission and the New Mexico Nutrition Council, along with the Center for Science in the Public Interest of Washington, DC.

### **Hang on to your land**

The first speaker was Antonio Manzanares of Ganados Del Valle, Tierra Amarilla, NM. Ganados is a non-profit corporation formed by farmers, and is devoted to sustainable economic development through sustainable agriculture. Ganados also has a successful weaving business using wool from local sheep ranchers.

Manzanares said that although the old way of farming among the Hispanics in the area was "probably sustainable," it was destroyed by the loss of land and water. He emphasized the importance of farm communities keeping control of their land. Ganados is now trying to buy land in the area, but it is very expensive. Chemicals and other forms of "modern agriculture are getting into our valley," as farmers copy farmers in other areas. "We know that copying them threatens us, but we may have to do it to hang on to the land." He said that those advocating sustainable use of natural resources in farming must remember not to judge too harshly some communities who are fighting for land and water just to stay alive.

### **Using Food Stamps at Farmers' Markets**

Mark Winne, Director of the Hartford Food System in Connecticut discussed opportunities for marketing fresh produce directly to consumers. Hartford Food System organized the Farmers' Market Nutrition Program which provides WIC recipients and low income elderly with coupons which can only be redeemed at farmers' markets. Their promotion

program doubled the amount of food stamps used by shoppers at outlets controlled by farmers.

Winne said that his program also encouraged farmers and farmers' markets to accept food stamps, and that it is "fairly easy to certify farmers to be Food Stamp acceptors." He recommended that local Farmers' Market Associations become Food Stamp acceptors, with individual farmers turning in food stamps and coupons to the Association's bank and receiving a check from the Association, usually the same day. This means that people can get fresh, tasty, healthy fruit and vegetables, using coupons and food stamps, while at the same time supporting local farmers who grow food without using poisonous chemicals. Hartford Food System is now preparing a manual on their Farmers' Market program to help others, perhaps even people at Zuni, to start programs of their own.

### **Focusing on Communities**

Bob Meyer of the Wisconsin Rural Development Center described the Center's project to develop a sustainable agriculture curriculum for high schools. ZSAP has copies of the curriculum guides published by the Center for anyone interested in looking at them: "Toward a Sustainable Agriculture: A Teacher's Guide," and "Resources for Teaching Sustainable Agriculture."

Representatives of the New Mexico Organic Commodity Commission discussed the organic certification program. We also invited someone from their organization to come to Zuni this spring to explain their certification program to interested farmers. We have a copy of the "Organic Certification Program for 1992" at the ZCP offices for anyone interested in looking at it.

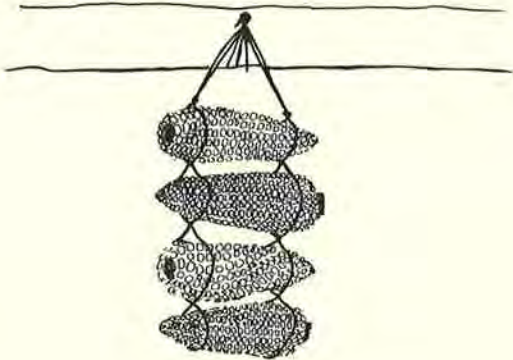
Steve Guldan is the Chief Researcher for the Alcalde Sustainable Agriculture Project, administered by New Mexico State University (NMSU) under a Kellogg Foundation grant. He emphasized that they want their applied research to be driven by farmers' needs. This is an opportunity for Zuni farmers to work with NMSU researchers.

One of the discussion groups focused on farmer networking, and several participants will work toward increasing communication between local farm communities and farmers in northern New Mexico interested in sustainable agriculture. One way to communicate is through a newsletter called "The Farm Connection" out of Sante Fe which published its first issue in December. We have some extra copies in the ZSAP office.



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Patricia Quintana of the New Mexico Department of Agriculture summed up a theme of the workshop when she said that you cannot think of sustainable agriculture as strictly production. You need people to produce the food, and if you don't focus on culture, what a community is all about, it will be very difficult to have sustainable agriculture.



## ***Agriculture and Archaeology***

*by Roger Anyon, Zuni Archaeology Program*

Why do farmers have to worry about archaeology? That's the \$64,000 question that always comes up when new developments and improvements are proposed. As things are now it's a tough one to deal with, but it doesn't have to be this way.

Before I answer the \$64,000 question I think it is important for everyone to know something about the Zuni Archaeology Program and Zuni Cultural Resources Enterprise. The Archaeology Program has been at Zuni since the late 1970s. The Enterprise has been here for ten years. Both the Program and Enterprise are Tribal organizations; they are completely owned and operated by the Zuni Tribe, and all their employees are hired by the Tribe.

Before I get into the "why" of archaeology let me say a little about the "what" of archaeology. For many hundreds of years the Zuni people have farmed the land. Farming has been very successful here at Zuni. It has sustained the Zuni people for all these centuries. In the past, people would live fairly close to their fields so they could easily walk to them and guard them. So they built their homes near their fields. Today their homes have become the ruins you find all over the Reservation. And, as you all have probably noticed, there always seem to be a lot of ruins in the areas that you want to farm. A good

place to farm in the past is often a good place to farm today. If you've got water and good soils things look pretty good.

Why does the issue of archaeology come up so often? Well, the bottom line is this: Federal law says that if you use Federal money for a project, then, before the project happens any effect to anything over 50 years old or to any sacred places, must be accounted for. And this is where the archaeologist comes in. Federal regulations tell us how the work must proceed. This may seem irrelevant, but no-one wants to disturb any burials or other sensitive things when they are plowing or digging irrigation ditches or doing other improvements. Mechanized agriculture, with things like plowing, disturbs a lot more ground than doing agriculture with a digging stick, so it is important that we protect Zuni history as much as possible. I think we would all agree that the old ruins should be left alone and not be disturbed by anyone, and this is what the archaeologists try to help you accomplish.

So, who pays for the archaeology? This is the responsibility of the Federal government when Federal funds are being used for a project. It's really very simple. This means that it is the sole responsibility of the Federal agency doing the work to make sure they find the funding to protect the ruins, artifacts, and sacred sites. And it is important to remember that this funding should be in the budget above and beyond the money needed to complete the project. I urge you to make sure that adequate funding for archaeology is provided for any new projects or improvements that you or your group would like to do so that it won't be a problem in the future. (I also think that it would be best if Federal agencies would fund the Tribe to do the archaeology. I think that we could help you better and faster, which is something I am sure you would all like to see.)

Besides funding it is important to plan ahead as far as you can. Planning at least six months ahead would be great, but I know that this is not always possible.

*If you would like me to come to any of the Irrigation Association meetings to answer questions or go over archaeology issues just let me know. The Archaeology Program and the Cultural Resources Enterprise are located in the west wing of the Old Hospital Building in Blackrock. We can be reached at P.O. Box 339, Zuni. Our telephone numbers are 782-4814 and 782-5558.*

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# **History Of The Zuni (A:Shiwi) Livestock Committee**

*by Donald Eriacho*

## **The Loss of Zuni Range**

With the arrival of the Spanish in the southwest in the 1500's, sheep and other livestock were introduced to the Zuni and other Native American peoples. As history records it, Zuni livestock grazed over a large area, what is called aboriginal land. This extended far beyond the present day official boundaries of Zuni land. The Zunis grazed their livestock from the Grand Canyon in Arizona in the west, and east as far as the Rio Grande. They grazed their sheep in areas that had abundant grass and water, which was shared by all of the livestock owners. Open range grazing was practiced before the reservation was fenced. As the twentieth century approached, the system of open grazing slowly came to an end. The Zunis lost the use of their traditional grazing lands and were confined to a "reservation." Even through Zuni stockmen reduced the number of their livestock, the reservation was overstocked. Overgrazing contributed to severe erosion on the reservation. All of the large reservoirs built on the reservation lost storage capacity due to siltation. With families building ranches and establishing permanent camps, they began to divide the range up among themselves to manage certain areas. This was done because the stockmen were assigned a number of livestock that they could raise based on the number of stock which the BIA thought that their assigned grazing land could support.

## **Herd Reduction**

By 1900 there were about 50,000 to 60,000 head of sheep on the Zuni reservation. In the 1930's it became necessary to reduce the number of livestock. These regulations also limited the number of stockmen who could graze animals on the reservation. Therefore, the Zuni livestock owners saw that the reservation could no longer support such large herds. Before the United States government started their livestock reduction programs, livestock owners had been voluntarily reducing their herds. This was done to maintain overall herd size because of the limits of their shrinking land base, and because Zuni stockmen have always placed a high value on proper care of their livestock and have practiced

responsible livestock management. When the reservation was established another problem arose. The land was not able to provide enough vegetation as before due to overgrazing. So, based on their traditional farming practices, the Zunis started to grow feed to supplement their livestock (e.g. rye seed, winter wheat, oats, and alfalfa.). The corn that had sustained the Zuni people for centuries was also used to sustain their livestock. With these changes in Zuni agriculture and loss of Zuni land, water conservation for both livestock and crops became even more important.

## **A Range Code**

Since reduction of livestock herds on the reservation began, some way of monitoring the livestock was needed. So around the 1950's organizations were formed such as the Zuni Sheep Association, the Zuni Cattle Association, the Nutria Cattle Association, and just recently the Independent Livestock Grazers Association. In 1957 the Zuni Sheep Association was first with adopting a permit system which would be for a two year period issued to the sheep bands. With these groups in place, bylaws were formulated for each group. A range code was produced in the mid 1970s by what was then called the Agriculture Advisory Committee. On July 20, 1976 the Zuni Range Code was adopted by a Tribal resolution, and approved by the commissioner of the Bureau of Indian Affairs.

The range code worked for a few people, but others were dissatisfied with it for one reason or another, and no group had the authority to enforce the code. Figures compiled from 1992 livestock permit renewal forms by Larry Livingston of the BIA show 12,656 head of livestock on the Zuni reservation (10,735 head of sheep, 1,767 head of cattle, 32 head of horses, and 122 head of goats).

## **Zuni A:shiwi Livestock Committee**

The Zuni A:shiwi Livestock Committee was formed on June 8, 1992 and recognized by the Tribal Council on the same day. Members of the committee were appointed by the four livestock associations to represent them. The committee consist of ten representatives from the Zuni Sheep Association (members Charles Hustito and David W. Wyaco Sr., alternates Zane Romancito and Alvin Nastacio), the Zuni Cattle Association (member Destrly Romancito, alternate Calvert Martinez), the Nutria Cattle Association (member Bryston Bowannie, alternate Philbert Bowannie), and the Independent Grazers Associa-

tion (member Donald Eriacho, alternate Fed Lementino). The Livestock Committee works with Larry Livingston, the range conservationist for the Bureau of Indian Affairs Zuni agency. The Committee also works closely with the Zuni Conservation Project and the Zuni Tribal Council.

The Committee has recently completed by-laws, and now needs to have them approved by the Governor and Tribal Council. The purposes of the bylaws of the Zuni A:shiwí Livestock Committee are to:

1. Update and enforce the Pueblo of Zuni range code.

2. Encourage the livestock owners to recognize, honor and respect each others grazing boundaries as agreed upon past and future.

3. Establish and enforce carrying capacities of the individual grazing units based on the recommended grazing practice of the Zuni Conservation Project and the Bureau of Indian Affairs.

4. Coordinate, cooperate and communicate between the Livestock Committee and the general public. Promote the proper use and preservation of range lands, including vegetation, soils, water, fish and wildlife, culture, and recreational resources on the Zuni Indian lands.

5. Establish and recommend short- and long-term range improvement programs to the various federal, state, county, and tribal organizations. These will be based on the needs of the livestock associations to sustain a more productive range, including adequate livestock water supply, erosion control, proper range management techniques, and noxious weed control.

6. Resolve any other livestock conflicts.

7. Work in close harmony with other federal, state, and private organizations within and outside the reservation in order to fulfill and meet the purpose of the Zuni A:shiwí Livestock Committee and the goals of the Associations.

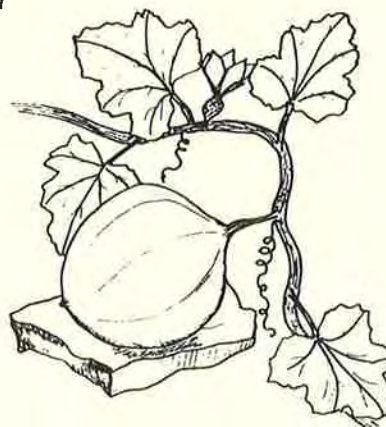
All in all, if the United States Government exercised better trust responsibilities from the ending decades of the 19th century to the present, the Zuni livestock owners might not have been faced with a situation in which they saw their aboriginal land base and way of life diminish. We now have to look to the future to see what good will come out of all of this for the Zuni people. It is never to late to save our way of life and to improve and repair our natural resources.

## Meet the New ZSAP Assistant Director

We had a great response to our advertisements for an Assistant Director, with applications from a number of well-qualified Zunis. We finally hired Donald Eriacho, who started as ZSAP Assistant Director on 13 November 1992. Donald is President of the Pescado Irrigation Unit, vice president of the Independent Livestock Committee, and chairman of the Zuni Fair Rodeo Committee. He has been involved with KSHI radio station since 1980, first as production and maintenance technician, and then as volunteer and member of the Board of Directors. Since November Donald has been assisting David Cleveland on all aspects of the project, and preparing to take over as ZSAP Director in November 1993. Its great to have a Zuni community member with such extensive and relevant experience working with ZSAP.



Donald Eriacho, the ZSAP Assistant Director. Photo by D. Cleveland



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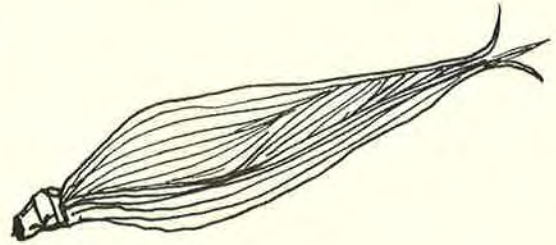
ZSAP is funded through a grant from the Ford Foundation.

David Cleveland    Director  
Donald Eriacho    Assistant Director

**Let Us Know What You Think!**  
Please let us know what you think about any of the articles in this newsletter, or any other issues concerning farming at Zuni. You can talk with us at the Zuni Conservation Project offices (near the Fair Grounds, 782-5851/2), or write to us (P.O. Drawer 630, Zuni, NM 87327). We'll publish a selection of your comments in the next issue, but we'll get your permission before publishing anything.

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