Northern Arizona Native Seed Alliance
Program Coordination

Final Report
November 30, 2008
Revised March 22, 2010

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&
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Summary of changes between January 19 and March 22 revisions: In the “Summary, Revisions, and Introduction to the future” section, under “Where does NANSA Go From Here?”, page 4, the paragraph describing a third area of research concerning mowing native stands for hay was inadvertently left out of the 19 January version. It has been reinstated.

Summary, Revisions, and Introduction to the Future

It’s About Time
The reader will notice that this report addresses the period from April 2007 through January 2009. The obvious questions are: Why wasn’t the report available sooner or where is the rest of 2009?
When dedicated funding ran out at the end of 2008, we were somewhat surprised that our follow-on grant to manage this program was not approved. Also at that time, NAU could not afford to retain our faculty member/facilitator without grant support. Gathering of loose ends, finishing up open items, and trying to keep NANSA moving forward, fell to the individual agencies and their representatives for the rest of 2009. Although important, the final report did not rate a high priority.

A Reminder: Why Did Conservation Districts Get Involved?
The point of NANSA, from a conservation district point of view, is to reduce the cost and risk associated with using reseeding as a conservation practice. The likelihood for success of any particular project is dependent upon the fortuitous combination with rains. There is intense competition for native seed for restoration, driven largely by ever-growing fire scenes and weed colonies, driving costs upward. Because the cost of seed is so high, and the chances for successful regeneration are so low, NRCS conservationists rarely suggest reseeding for issues related to plant vigor on the southern half of the Colorado Plateau. This is unlikely to change unless and until we can both lower the cost and lower the risk for restoration with native seed or other plant materials.

Research indicates that the use of seed from sources near to the restoration project have a far higher (upwards to 80%) chance of success than seed from sources that are not local. This idea of using plant material with local genotypes (genetic material) is a key focus for NANSA. The other focus is on finding a way to propagate local seed at low cost by, for example, increasing the number of sources.
**Recent Developments**

Although some of the faces have changed, and some of the organizational relations are different now, NANSA is still alive and moving forward with modest dedicated funding.

NAU’s Environmental Monitoring and Assessment Program, as of late 2009, is now known as the Landsward Institute. They are continuing to support NANSA by providing the facilitator and other important institutional resources. Funding for this is now coming to us from the new-ish Colorado Plateau Native Plant Initiative (CPNPI), which has come into being by combining elements of the 1) Great Basin Native Plant Selection and Increase Project, in Utah, and 2) Uncompahgre Plateau Project, in Colorado. Although proposed in 2007, the CPNPI didn’t reach full stride until 2009. They also hired their first Program Manager in 2009. They have recognized NANSA as their partner in Arizona, and are the source of current funding for administering NANSA, as of the start of 2010. This support is expected to be ongoing.

NANSA is not asking AACD for additional funds. The “seed” funding provided by AACD has done its job, for which everyone in NANSA is grateful. NANSA must now establish its value in a wider venue, and live or die on its ability to rise to the next level as discussed below.

**Where Does NANSA Go From Here?**

The following report describes extensive investigative efforts of many people, from many agencies and groups, who have come together on this project to learn and to share their learning with each other.

It is not often that, for a project like this, we can say that we exceeded our goals, but for this effort, they were greatly exceeded. I am generalizing, of course, but I believe we expected that we would be spending the major portion of our efforts researching the mechanics of propagating targeted native species. We did do this, and continue to do so. But we discovered a vast amount of literature and working expertise on this aspect of native seed production. Now we will need to address the potential ramp-up from experimental plots to pre-commercial scale agricultural operations, including mechanical harvesting, seed cleaning, climate controlled storage, and record keeping. We will need to jump from raised beds and small plots to level acreage with controlled access. Ideally, we are talking about a branch or annex of an existing Plant Material Center, or perhaps a new center. In any case, we are probably talking about a capital expenditure of seven figures, and annual expenses in six figures. But this is dwarfed by current expenditures on seed and plant materials by land managers of eight or nine figures annually.

We also learned much about the active markets and their ongoing supply and demand. What we have not done is convince commercial growers that they need to consider local seed sources rather than their generic sources. It is not that they can’t be convinced that local is better. But their common sense test is to ask these questions: “How are we supposed to know where the next fire is going to be? How can we anticipate the location so that we can go there, or near to there, and collect seed, and know how much to collect, and when to grow it?” By asking these questions, they have shown that we will need to focus some of our research attention on identifying definitions of “local” for plants of the southern part of the Colorado Plateau, and perhaps on modeling projected needs in time and by area.
A third area of research that needs attention is the concept of mowing forest and rangelands for hay that can be distributed over adjacent burned areas and other restoration targets. This hay would constitute a local seed field mix and mulch combined. Benefits a potentially large, since mulching is another significant booster to seeding success. Hays are already exempt from almost all seed certification regulations, and mowing can be started without delays for propagation and stockpiling. Perhaps we can convince a farm implements manufacturer to build a prototype system that will take us through the mowing, drying, and distributing stages.

Other participating organizations may not be able or willing to go with the three focal points suggested above, either because of the nature of their mission, or the nature of their funding. Much of the collateral funding received to date is tied tightly to investigating seed collection and propagation techniques. Indeed, in addition to our funding for administration and facilitation, we are getting two graduate interns in 2010. But their work will be strictly limited to seed collection by the specific nature of their funding. So, while NANSA participants remain engaged and active, it may be difficult to make the necessary adjustments. NANSA is at that threshold between applied research and production. We lack producers in our alliance (we need farmers!) to take our results beyond that threshold to the next level.

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19 January, 2010
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Cover photo:
Harvesting a Sand dropseed cultivar at the NRCS Las Lunas Plant Material Center. The original seed was collected by hand at field or forest sites. The resulting harvested seed, cleaned and tested, is destined for commercial growers for propagation into sellable quantities for customers who will use it for restoration. Photo © Coconino NRCD.
Our Vision
Our aim is to support native northern Arizona landscapes that are diverse and sustainable. We are dedicated to producing abundant and affordable quantities of genetically diverse and ecologically appropriate native plant materials. We envision all land managers being able to use these materials for restoration, conservation, and vegetation projects.

Mission Statement
The Northern Arizona Native Seed Alliance is comprised of individuals, government agencies, non-profit organizations and commercial businesses. We support the availability of genetically diverse native plant materials for restoration and conservation. Through collaboration and outreach we: 1) research and develop native plants, and propagation and distribution methods for northern Arizona landscapes; 2) examine ways to produce and collect an appropriate and affordable product; and 3) educate land managers and the general public on the importance of native plants.

Background and Project Description
The inception of the Northern Arizona Native Seed Alliance (NANSA) began in spring 2007, with the development of a U.S. Forest Service collaborative Native Plant Materials Program and an invitation for Arizona resources managers to participate in the expansion of the Uncompahgre Plateau Native Plant Project to the Colorado Plateau Native Plant Initiative. The initial meetings brought together representatives from 19 different federal, state, and local agencies and organizations in Northern Arizona. In August, the Coconino Natural Resource Conservation District (CNRC) sponsored a presentation to the Arizona Association of Conservation Districts (AACD) conference in Show Low, Arizona, seeking funds to help create a fully functioning NANSA.

Recognizing both the importance of the mission and the benefits of regional coordination, the (AACD), and NAU’s Ecological Monitoring & Assessment (EMA) Foundation matched funds to support a part-time coordinator (24hrs / month). Responsibilities included managing the groups’ activities and outreach, coordinating and facilitating regularly scheduled meetings, and maintaining communications among group members. Duties also include pursuing potential grant funding, facilitating outreach and education presentations and workshops, and continued coordination with the regional native plant initiatives and groups.

As a result of this funding support, additional stakeholders have become involved with the development of the Northern Arizona Native Seed Alliance (NANSA). Through their participation and support a variety of activities and a wealth of knowledge on how to reduce the cost and risk of using native seeds and plants for restoration in Arizona have been generated. Meeting coordination and facilitation has ensured and maintained an open, inclusive, and transparent process and outreach efforts have begun to generate broad community support and involvement. NANSA has engaged stakeholders in bi-monthly meetings, workshops, regional conferences and in the development of various research collaborations and partnerships.
**Regional Communication among Stakeholders**

NANSA has successfully engaged a variety of stakeholders including 106 individuals representing 57 government agencies, non-profit organizations and commercial businesses interested in supporting the development of genetically diverse and appropriate native plant materials for restoration, conservation and revegetation projects in northern Arizona (Appendix A). Stakeholders that have played a more active role within NANSA are listed in Table 1. This collaborative approach has assisted in identifying common values among a diverse group of stakeholders and has fostered multi-partner and multi-agency discussion and involvement between federal, state, tribal and local governments, universities, non-profit and conservation organizations, local businesses, private landowners and other interest groups. By strengthening communication among stakeholder groups, NANSA has brought current and potential suppliers into a dialogue with federal and state agencies, and organizations that require native plants and seeds, or represent land managers who do.

Table 1. Agencies and organizations that actively participate in NANSA activities.

<table>
<thead>
<tr>
<th>U.S. Forest Service Region 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coconino National Forest</td>
</tr>
<tr>
<td>Prescott National Forest</td>
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<tr>
<td>Kaibab National Forest</td>
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<tr>
<td>Rocky Mountain Research Station</td>
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<td>U.S. Fish and Wildlife Service</td>
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<tr>
<td>National Park Service</td>
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<tr>
<td>Colorado Plateau Cooperative Ecosystems Study Unit</td>
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<tr>
<td>Grand Canyon National Park</td>
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<td>Natural Resource Conservation Service</td>
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<tr>
<td>Arizona Association of Conservation Districts</td>
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<tr>
<td>Coconino Natural Resource Conservation District</td>
</tr>
<tr>
<td>Northern Arizona University</td>
</tr>
<tr>
<td>The Ecological Monitoring &amp; Assessment Program</td>
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<tr>
<td>The Ecological Restoration Institute</td>
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<tr>
<td>The School of Forestry</td>
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<tr>
<td>The NAU Research Greenhouse Complex</td>
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<tr>
<td>Arizona Game and Fish Department</td>
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<tr>
<td>The Arboretum at Flagstaff</td>
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<tr>
<td>The Museum of Northern Arizona</td>
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<tr>
<td>Grand Canyon Trust</td>
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<tr>
<td>The Nature Conservancy Hart Prairie Preserve</td>
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<tr>
<td>Arizona Native Plant Society</td>
</tr>
<tr>
<td>White Mountain Apache Tribal Forestry</td>
</tr>
<tr>
<td>Flagstaff Native Plant &amp; Seed</td>
</tr>
</tbody>
</table>
NANSA activities (2007-8) that have fostered communication among stakeholders include:

- Nine bi-monthly NANSA meetings were hosted at the Northern Arizona University campus; seven of which were supported through the AACD/CNRCD and NAU EMA Program funding.
- Engaged 43 participants that represented 30 different federal, state, regional, and local agencies, organizations and other land managers.
- Provided NANSA related announcements, project updates, and meeting invitations, agendas, and notes via e-mail to 106 individuals from 57 government agencies, non-profit organizations, commercial businesses and private landowners.
- Attended and presented at 10 conferences and meetings throughout northern Arizona and the Southern Colorado Plateau to generate dialogue, interest, and support for NANSA activities. (See Outreach and Education Working Group accomplishments below for a full list of presentations)
- Hosted and/or provided support and participation of five workshops and field trainings that assisted NANSA members in gaining the knowledge and experience to achieve the overall mission and vision of the Alliance. (See Outreach and Education Working Group accomplishments below for a full list of workshops and training events)
- Formed four working groups to target specific NANSA goals and objectives. (See below for more detail)

NANSA Working Groups

In January 2008, NANSA developed four working groups to focus on specific goals and objectives identified by members. The working groups included: 1) Administration / Organization Working Group, 2) Outreach and Education Working Group, 3) Supply and Demand Working Group, and 4) Research Working Group. Participants of the working groups included 16 representatives from 10 different agencies and organizations. The following four groups enabled active NANSA members to focus their diverse expertise, interests, and abilities towards activities that met their agencies or organizations needs while contributing to the overall goals and objectives of the collaborative group. Below is a summary of the activities and accomplishments of each working group.

* Administration and Group Organization

The Administration and Organization Working Group was formed to further define and develop the overarching goals and objective of NANSA.

Accomplishments of the working group included:

- Developed a Vision and Mission Statement that reflected the diverse interests of NANSA members (See Page 1 of this Report)
- Created an organizational chart that reflects the needs and interests of current NANSA members and outlines the potential structure of the Alliance for future growth.
- Identified grant opportunities available to support future NANSA activities and projects.
*Outreach and Education*

The goals of the Outreach and Education Working Group was to continue to build group capacity, increase awareness and support, provide educational opportunities for NANSA members and the community, and disseminate information.

Accomplishments of the working group (2007-8) included:

- Created and launched NANSA web pages located and hosted by the EMA Program & Foundation website at [http://www.landsward.nau.edu/NativePlantsandSeeds.html](http://www.landsward.nau.edu/NativePlantsandSeeds.html). The web pages are designed to provide basic information about NANSA and links to NANSA related information, organizations, and events.
- Initial development of a website or “blog” that would allow the NANSA coordinator and select working group leaders to actively post current news and events such as seed collection information and training and workshop announcements, and that would provide a forum for NANSA members to better communicate and stay informed about native seed issues. This would also provide an archive or file for accumulated links and documents that have been collected on the subject.
- Developed a relationship with the Grand Canyon Trust that allows NANSA members to post volunteer opportunities on the Trust’s website in order to take advantage of their established volunteer pool for NANSA related activities and projects.
- Identified the need to develop a white paper and executive summary that would be available to the public to promote NANSA activities and generate support and future participation in the alliance.
- Begun to identify media outlets and links in which to contact with NANSA press releases about projects and activities that would promote NANSA.
- Identified the interest in creating a formal speaker series hosted by NAU to promote education about local native seeds and plants to the public and provide technical information to NANSA members. Tom Whitham was selected to discuss issues concerning local native seed genotypes in Northern Arizona.
- Provide outreach and educational information through the following presentations, workshops, and conferences:

   **Presentations and Press Articles:**
   Note: Unless otherwise indicated, all articles are available at: [http://www.landsward.nau.edu/NativePublications.html](http://www.landsward.nau.edu/NativePublications.html)


4. “The Northern Arizona Native Seed Alliance”, presented November 30, 2007 to the EMA Foundation Board of Directors annual business meeting, which includes the President of Babbitt Ranches, Bill Cordasco and the President of NAU, John Haeger.


8. “Coconino NRCD’s cooperation with the Northern Arizona Native Seed Alliance”, article posted to the April 15, 2008 Newsletter of the Flagstaff Chapter of the Arizona Native Plant Society. Not available on line.


Workshops / Symposia:

1. Plant Community Restoration Workshop in Grand Junction, Colorado – Graduate student Donna Peppin, the lead investigator for a feasibility study on the economy of native plant materials, attended the September 4-8, 2007 conference and spoke with attendees about NANSA and the feasibility study.

2. 9th Biennial Conference for Research on the Colorado Plateau in Flagstaff, Arizona – Assisted with the development and coordination of two special half-day sessions on October 31, 2007 entitled “Native Plant Production and Seed Increase” and “Using Native Plants in Ecological Restoration”.
Training / Field Visits:

1. **Great Basin Research Center in Ephraim, Utah** – NANSA members toured the research and storage facilities and talked with managers about the program on November 8-10, 2007.

2. **NRCS Las Lunas Plant Materials Center Field Trip, Las Lunas, New Mexico** – 11 participants representing 9 federal, state, and local agencies and organizations toured the facilities, received hands-on demonstrations and information about seed propagation and increase, harvesting, cleaning, sorting, drying and storage.


*Research*

The Research Working Group developed a list of objectives and priorities that would direct their activities and assist NANSA members in gaining needed information necessary to develop a local supply of appropriate native seed and plants in northern Arizona.

Research objectives identified included:

1. Identify the current knowledge base
2. Identify knowledge gaps
3. Prioritize current research needs
4. Develop long-term research strategies to fill knowledge gaps
5. Provide research assistance to projects with new local cultivars that currently under development
6. Identify a suite of new species appropriate for local cultivar development
7. Examine genetic diversity and adaptability for select species
8. Determine germination, growth requirements and range for select species
9. Develop seed testing capability
10. Ensure adequate monitoring and evaluation of restoration and rehabilitation efforts

Accomplishments of the working group partners included:

- Summarized current harvesting and propagation techniques for native plant materials. (See feasibility report).
- Conducted a review of issues concerning the use of local genotypes (in progress).
- Compiled information on policies and procedures relating to collecting permits for all local land agencies to expedite collection activities.
- Drafted plans to develop a project map of all native plant and seed research, restoration, and other related activities throughout northern Arizona.
- Identified current resources required and locally available for native plant production. (See feasibility study)
- Identified current market prices for 13 species in high demand on the Colorado Plateau. (See feasibility study)
- Summarized current and ongoing restoration projects in northern Arizona. (See feasibility study)
• Outlined seed certification processes and labeling for plant germplasm types
• Compiled information on current policies, programs, and facilities currently available in northern Arizona. (See feasibility report)

*Supply and Demand*

The goal of the Supply and Demand Working Group is to facilitate and support the development and availability of an adequate and affordable supply of native seed in northern Arizona.

Supply and demand objectives identified included:
1. Determine immediate regional needs for native seed: species and amounts
2. Identify and establish partnerships with suppliers and buyers
3. Identify market strategies and values
4. Locate seed collection sites
5. Provide training and coordination
6. Identify and develop seed storage facilities
7. Identify and develop grow-out fields
8. Acquire equipment to sow, harvest and clean seed
9. Collect local seed
10. Clean, weigh, store and catalog seed collected
11. Propagate seed already collected into beds,
12. Consider protection of sites from grazing where appropriate
13. Develop long-term production strategies

Accomplishments of the working group partners included:
• Identified the species and quantities of the immediate regional needs for native seed. (See feasibility report)
• Opened a dialogue with local suppliers and buyers
• Identified seed collection sites throughout northern Arizona. (in progress)
• Provided coordination for training and hands-on field opportunities for seed collection, cleaning, and propagation
• Identified current and potential seed storage facilities
• Developed native seed propagation beds at the Arboretum at Flagstaff and MNA
• Collected seed from 48 species of native grasses and forbs at collection locations in northern Arizona ranging from lower pinion juniper sites to aspen forests.
• Supplied approximately 3 pounds of seed for restoration purposes at Raymond Ranch Wildlife Area.
• Provided a two day hands-on training workshop with the National Seed Lab through the USFS Native Plant Materials Program partners.
• Purchased harvesting and seed cleaning equipment through USFS project funds to more efficiently increase the quantity of local native seed available to land agencies and owners.
• Compiled information about current seed certification procedures and personnel in northern Arizona.
• Completed a feasibility study for developing a native plant market in northern Arizona that included a survey of supplies and buyers within the region. (See feasibility report)
Products Generated:
- A feasibility analysis and report is available for public use by federal, state, and local agencies and organizations. An information network to disseminate information to stakeholders has been developed.
- The distribution list includes 106 representatives from 57 federal, state, regional, and local agencies and organizations interested in developing a native plant and seed market in northern Arizona.
- NANSA website is an educational and outreach tool available to the public.
- Public access via the website of information gathered by NANSA members on native plant and seeds.
- Three one-page quarterly reports and this final report available for public distribution.
- Access to harvesting and seed cleaning equipment for NANSA related activities.

Additional Collaborations and Leveraged Projects and Funds:
As a result of the support provided by the AACD through the CNRCD, the Northern Arizona Native Seed Alliance has been a conduit for which regional collaborations and partnerships have developed and has formed the foundation for on-going and future projects and initiatives in Arizona. The following are a few examples of the formal collaborative projects that have stemmed from the formation of NANSA and have resulted in leveraged dollars (Table 2). Besides those mentioned below, NANSA has fostered other additional projects and relationships between the CNRCD, NAU and active NANSA participants such as U.S. Fish & Wildlife Service, National Park Service, The Arizona Native Plant Society, Arizona Game & Fish Department, the Grand Canyon Trust, and The Nature Conservancy.

* USDA Forest Service, Museum of Northern Arizona, and the Arboretum at Flagstaff*
In 2007 the USDA Forest Service Regional Botanist for the Coconino, Kaibab, and Prescott National Forest awarded a 3-year grant contract to the Museum of Northern Arizona and the Arboretum at Flagstaff to develop the USFS Native Plant Materials Program (NPMP).

Project Objectives:
1. Locally collect and store native seeds from habitats within the national forests’ boundaries, adjacent Hopi, Kane, Bar T Bar and Babbitt ranches to provide grass and forb seed for increasing in nursery fields and seedbeds;  
2. Construct seed beds and grow plugs to cultivate and increase locally collected native forbs in readily accessible sites for harvests and for demonstration sites;  
3. Establish increaser acres in cooperation with local growers and ranches, and continue to expand the use of the innovative technique;  
4. Acquire equipment such as seed harvesters, seed cleaners, seed dryers, and seed storage containers to collect and process native seeds for short-term storage and use;  
5. Provide National Seed Laboratory training for Forest Service Botanists, Range Specialists, Plant Ecologists and interested partners.  
6. Work cooperatively to develop local native species lists, especially early seral species that will become our “workhorse” species in restoration projects and continue to locate good seed collection areas throughout the forests and ranches.
Project Accomplishments:
- Identified seed collection sites throughout northern Arizona.
- Collected 40 lbs of seed from 48 species of native grasses and forbs at collection locations in northern Arizona ranging from lower pinion juniper sites to aspen forests.
- Purchased a harvester and seed cleaning equipment
- Hosted a two-day training workshop with the National Seed Lab
- Developed and seeded propagation beds at the Arboretum at Flagstaff and MNA
- Supplied seed to the Arizona Department of Game and Fish for restoration purposes at Raymond Ranch Wildlife Area.

Proposed Activities for 2009:
Provide additional training opportunities and certification workshops from the National Seed Lab. Working with the NANSA inter-agency facilities tours will be scheduled to further build partnerships and increase collaboration among local and regional parties interested in furthering the work of the Native Plant Materials Program (NPMP). Efforts to document valuable collecting sites will continue. Seed collecting will expand in the 2009 field season to include regional portions of the Colorado Plateau that have not yet been collected for this program.

NANSA members continue to collaborate with the U.S. Forest Service Region 3 on the development of the NPMP in Northern Arizona. Program activities are managed by the Museum of Northern Arizona and the Arboretum at Flagstaff and involve collaborative support from Grand Canyon Trust, Arizona Game and Fish Department, and other NANSA members. The AACD/CNRCD-supported NANSA coordinator at the EMA Program assisted with the project by posting information on the NANSA web pages hosted by NAU, seeking volunteers and interns through the EMA Program Student Connections, and facilitating and encouraging partnership building among stakeholders. The NPMP also enables the NANSA partnership to become a local sustainable resource for native seed collection and propagation by expanding equipment availability and using under-utilized facilities and provides training opportunities for partners. The project also has implications beyond a single project or area by providing baseline data regarding native species and their collection and cultivation sites in a wide variety of habitats.

*NAU School of Forestry, the EMA Program, Coconino NRCD, and the AACD*
Through the AACD/CNRCD support and matching funds from the Technology and Research Initiative Fund (TRIF) to the EMA Program at NAU efforts to investigate the feasibility of a native seed market in Northern Arizona began through a collaboration that also included a graduate student and faculty in the School of Forestry, and researchers at the Ecological Restoration Institute and Social Research Lab. The principal goal of this project was to facilitate the development of Arizona businesses that may address the demands for locally-adapted native plants and seed for use in regional habitat revegetation in Arizona. The study investigated the feasibility of producing this supply and gathered baseline data that provides a foundation for the development of this business sector.
Project Accomplishments:

- Completed 10 background interviews with local government, non-profit, and private entities
- Conducted web-based surveys and personal interviews with 39 commercial seed companies and 42 buyers.
- Analyzed survey data that included information about: collection, production, harvest, and storage of native materials; equipment, technology, and infrastructure requirements; distribution costs; and marketing strategies.
- Summarized current harvesting and propagation techniques for native plant materials.
- Identified current resources required and locally available for native plant production.
- Identified current market prices for 13 species in high demand on the Colorado Plateau.
- Summarized current and ongoing restoration projects in northern Arizona.
- Compiled information on current policies, programs, and facilities currently available in northern Arizona.

Results are public to businesses, entrepreneurs, and agencies and organizations interested in native plant and seed production and posted to the NANSA web pages on the EMA Program website. By stimulating economic development opportunities that focus on supplying locally-adapted native plants and seed, this project was important not only to the economic future of Arizona, but to the environmental health of our state’s diverse ecosystems. Efforts and information gained through this project have stimulated additional funds for current and future projects, including additional research within northern Arizona.

Table 2. Leveraged projects resulting from funding provided for a NANSA coordinator by the AACD, CNRCD and NAU.

<table>
<thead>
<tr>
<th>Project</th>
<th>Managing Organization</th>
<th>Funding Source</th>
<th>Funding Period</th>
<th>Funding Amount</th>
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<tr>
<td>Northern Arizona Native Plant Material Feasibility Study</td>
<td>NAU</td>
<td>Arizona Board of Reagents</td>
<td>2007-2008</td>
<td>$25,000</td>
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<td>Native Plant Materials Program</td>
<td>Arboretum at Flagstaff, MNA</td>
<td>USDS Forest Service Region 3</td>
<td>2007-2009</td>
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<td>Post-wildfire seeding in forests of the Intermountain West</td>
<td>NAU, USDA Rocky Mountain Research Station</td>
<td>Joint Fire Science Program</td>
<td>2008-2009</td>
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<td>Native Seed Student Internship</td>
<td>NAU, Grand Canyon National Park</td>
<td>Grand Canyon Association</td>
<td>2008</td>
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<tr>
<td><strong>Total Leveraged Funds</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$335,360</strong></td>
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</table>

* NAU School of Forestry and Ecological Restoration Institute, and the USFS Rocky Mountain Research Station

The Northern Arizona Native Plant Materials Feasibility Study and work supported by the formation of NANSA resulted in an additional collaborative project that includes the USDA Forest Service Rocky Mountain Research Station in Flagstaff. A two-year grant was awarded in spring 2008 to the School of Forestry from the Joint Fires Science Program for researchers and NAU faculty and a graduate student to investigate the feasibility of post-wildlife seeding in
forests of the Intermountain West with regards to trends, costs, effectiveness, and use of native seed. This grant is a direct result of the research and collaboration developed through NANSA made possible by support from the AACD and CNRCD. This on-going work will be conducted in conjunction with the Ecological Restoration Institute and the USDA Forest Service Rocky Mountain Research Station in Flagstaff.

*Northern Arizona University and the Grand Canyon National Park*

Through the participation in NANSA by the National Park Service, the Grand Canyon National Park supported a native seed student internship through the NAU EMA Program during summer and fall of 2008. The purpose of the internship was to assist the park vegetation program by developing a seed needs assessment and species recommendations for GRCA seed collection, production, storage and planting, and by leading volunteers in grass seed collection efforts.

**Project Objectives:**

- Review background information and resources including park species list, collection, species and seed cost information, park projects, NRCS Plant Materials center literature and seed production experience, and the Northern Arizona Native Plant Materials Feasibility Study.
- Identify projected park seed needs for the next 5 years for post-fire seeding, exotic plant management, construction disturbance and revegetation needs.
- Research and identify strategies for how to establish a seed source including seed collection, production, and storage
- Grow seed on in the nursery for plug, plant and seed production
- Identify species to collect and produce
- Identify collection locations
- Propose, develop, prepare for and lead two or more volunteer seed collecting and processing opportunities
- Lead volunteer groups to collect these seeds
- Clean, package and store seeds

**Project Accomplishments:**

- Collected 20 native grass species and 32 native forbs and native tree species from locations on the South and North Rim of the Grand Canyon
- Prepared soil for salvation plants, and seed growing, and seed beds
- Assisted with invasive plant removals throughout the park boundaries.
- Assisted in coordination and leading high school and international students, families, and retirees
- Educated volunteers from American Conservation Experience and Grand Canyon Field Institute on vegetation programs, and informed them about native species and invasive species
- Collected endangered Century Milkvetch from locations on the South Rim
- Relocated rare Tusayan flameflower within the Park

This collaborative project has fostered dialogue between the National Park and other NANSA members and has committed Park personnel to working with other organizations at finding solutions to reducing the risk and cost of using local native plants and seeds in Northern Arizona.
The Park anticipates continued support for another student internship through the NAU EMA Program in 2009 to continue efforts begun in 2008.

**Concluding Remarks**
Since its inception in spring 2007, NANSA has successfully created a central network that has fostered information sharing, collaborative projects and partnerships, and professional training opportunities. As a result, research, education, and outreach activities have been generated which have directly contributed to reducing the risk and cost of using native seed and plant materials in conservation and restoration efforts in the Coconino Natural Resource Conservation District and northern Arizona in general. Considering the complexity of the issues and the diversity and number of interested stakeholders, the accomplishments of the collaboration have been numerous and beyond the initial expectations of those involved. However, despite these accomplishments, NANSA partners faced a variety of future challenges before a local native seed supply will be readily available to buyers.

**Future Challenges**
- Secure long-term funding to support NANSA coordination and outreach activities
- Further investigation of market strategies and feasibility
- Development of cooperative agreements between native seed suppliers and buyers that will stimulate the creation of a viable market
- Additional technical training and research necessary to successfully propagate local genotypes
- Financial and technical support for personnel or landowners interested in growing native seed
- Infrastructure such as a seed storage facility and additional harvesting equipment necessary to create a readily available native seed supply in northern Arizona