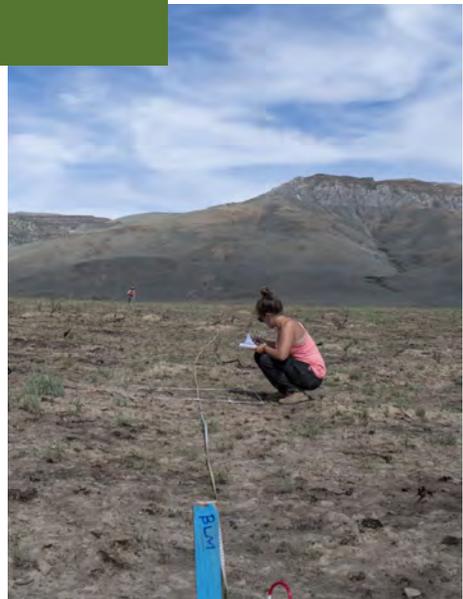


Nevada Seed Strategy

Business Plan

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in collaboration with
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Introduction

The Nevada Native Seed Partnership (NNSP) finalized The Nevada Seed Strategy (Strategy) in January 2020. The Strategy aims to increase the availability and use of native seed for rehabilitation, restoration, and reclamation treatments by identifying a range of market-support, research, and outreach activities to support the native plant materials industry in Nevada. On January 29, 2020, the Nevada Shared Stewardship Executive Committee unanimously agreed to include the Nevada Seed Strategy as one of the strategies and plans referred to in Shared Stewardship Agreement in recognition of its importance in conserving, protecting, and improving landscape health through ecological restoration, supporting agricultural and rural economies, and reducing the risk and mitigating the effects of wildfire.

Implementing the Strategy requires investments in infrastructure, research, decision tools, and communication efforts. Investments are needed to support expanding the collection, production, and storage of native plant materials, enhancing research activities, and hiring additional personnel to assist with key tasks including inventory management, research, and developing outreach materials. This document, the Nevada Seed Strategy Business Plan (Business Plan), provides estimates for the resources required and associated costs for all of the actions described in the Strategy. The Business Plan was developed in consultation with staff and researchers at federal and state agencies, non-governmental organizations (NGOs), and universities. The Business Plan's intent is to help the NNSP and its partners better direct existing financial resources and work to secure additional funding to implement the Strategy while also providing an accurate picture of the Strategy's implementation costs for NNSP leadership.

The Strategy has four broad goals: (1) Identify seed needs, and ensure reliable availability of genetically appropriate seed; (2) Identify research needs and facilitate research to improve technology for native seed production and ecosystem restoration; (3) Develop and implement tools that enable managers and producers to make decisions about collecting, increasing, and using genetically appropriate seed; and (4) Develop and implement strategies for internal and external communications. The Business Plan is organized according to these four goals and provides detailed cost estimates of each of the actions that support these goals.

The Business Plan's costs estimates reflect two key decisions. First, the Business Plan only reports costs for the additional resources required to complete an action in the Strategy. Many of the actions in the Strategy include on-going activity. The costs of on-going activity are not included in the Business Plan. The Business Plan has been developed assuming that all on-going activity will continue to be supported at current levels and contends that maintaining support for on-going activity is the highest priority.

Second, the Business Plan does not make any recommendations about where additional resources/personnel associated with a given action should be housed, or which state agency, federal agency, NGO, etc. is best positioned to fund the additional resources/personnel. For personnel, each proposed new position was assigned according to the U.S. Federal Government's General Schedule (GS) depending on the position's responsibilities and required qualifications. The salary estimates for each proposed new position corresponds to an amount equivalent to the GS Salary Table (2020) Step 1.

Implementation and Priority Status



The Business Plan classifies each action in the Strategy based on its implementation and priority status. There are four categories of implementation status. **Green** actions are on-going and require continued support but no additional resources. **Orange** actions require additional resources but could be implemented quickly (within a year) if resources are made available. Many Orange actions include on-going activities but require additional resources to be completed as described in the Strategy. **Blue** actions require both additional resources and further planning and/or research to be implemented. Implementation for blue actions will likely take more than a year even if resources are made available. Finally, **Gold** actions involve coordination by NNSP leadership. Actions that fall into this category may or may not involve any additional cost. Table 1 summarizes this classification scheme.

Table 1. Implementation Status

<p>Green Actions: This action type is currently funded and/or supported by NNSP members. Green actions do not need additional costs or personnel to implement; however, continued support and funding at current levels is needed for these actions to continue.</p>
<p>Orange Actions: This action type requires additional costs and can be implemented within 1 year if resources are available.</p>
<p>Blue Actions: This action type involves additional costs as well as further research. Full implementation takes longer than a year if resources are available.</p>
<p>Gold Actions: This action type involves coordination by NNSP leadership. This may or may not involve additional costs.</p>

Each action in the Strategy is assigned into one of three priority statuses. **Level 1 – Urgent** are actions that should be done immediately. Other actions in the Strategy often depend on accomplishing Level 1 actions. The Business Plan assumes that Level 1 actions start in Year 1 of the planning horizon. **Level 2 – Secondary** are actions that are less urgent to accomplish and often require that other actions be accomplished first in order to be successful. The Business Plan assumes that Level 2 actions start in Year 2. **Level 3 – Planning** are actions that are still at the planning stage and require a formal assessment before moving forward. The Business Plan assumes that Level 3 actions start in Year 3. **Green** actions are not assigned a priority status because they are on-going.

Table 2-5 list all the actions in the Strategy according to priority and implementation status. Table 2 lists all on-going actions. Table 3 lists all Level 1 – Urgent actions. Table 4 lists all Level 2 – Secondary actions. Table 5 lists all Level 3 – Planning actions.



Summary of Results



Total cost associated with all actions is \$4,521,070 over the initial **five**-year ramp-up period. These costs include \$492,070 in year 1, \$868,526 in year 2, \$1,545,738 in year 3, \$877,131 in year 4, and \$737,605 in year 5. Total **recurring** costs after the five-year ramp-up period is \$745,114 per year.

Total estimated cost by priority status over the initial five-year ramp-up period: Level 1-Urgent actions is \$1,434,140; Level 2- Secondary actions is \$1,619,687; and Level 3 – Planning actions is \$1,467,243.

Table 2-5 give annual and total costs for each action item organized by priority status. **Green** actions are do not have an associated cost because they are on-going and represent currently funded activities. Detailed budgetary breakdowns of each action item are given in the sections to follow.



Table 2. On-going Actions

Ongoing Actions
Action 1.1.2 Identify Nevada’s workhorse species
Action 1.3.1 Expand seed collection and source identification efforts in Nevada
Action 1.3.2 Maintain and expand the internal ArcGIS online database for seed collection tracking and reporting
Action 1.3.4 Develop Best Management Practices for seed collection in Nevada
Action 2.1.1 Develop lists of target native plant species
Action 2.2.1 Create an integrated and streamlined implementation plan for research
Action 2.3.1 Conduct common gardens and genetic analyses for target and workhorse species
Action 3.1.1 Identify, update, and develop guides, protocols, and factsheets for production and application of native seed in Nevada (ongoing)
Action 3.2.1 Identify or develop contracting methods that promote certainty and stability for producers and buyers
Action 3.2.2 Create a streamlined approach for procuring native seed
Action 4.1.1 Ensure staff support to continue coordination and communication among NNSP organizations
Action 4.1.2 Conduct monthly NNSP meetings
Action 4.1.3 Communicate to NNSP leadership to report progress
Action 4.2.1 Develop and implement a comprehensive external communications plan
Action 4.2.2 Organize and implement the annual Nevada Native Seed Forum
Action 4.3.1 Establish a mechanism to report on the progress and achievements of the Strategy
Action 4.3.2 Review and revise the Strategy

Table 3. Level 1 – Urgent Actions

Level 1 - Urgent Actions	Year 1	Year 2	Year 3	Year 4*	5-Year Total Cost
Action 1.1.1 Identify target species for seed collection and increase by assessing planned seeding projects, intersecting with empirical and/or provisional seed zones	\$41,084	\$16,751	\$17,292	\$17,832	\$110,791
Action 1.2.1 Determine the need and feasibility of co-locating native plant material development activities	\$16,745	\$ -	\$ -	\$ -	\$16,745
Action 1.2.3 Establish a Nevada Foundation Seed Program and hire a dedicated manager	\$170,969	\$106,284	\$109,713	\$113,142	\$613,250
Action 1.3.3 Improve interagency permitting for seed collection	\$86,473	\$13,976	\$ -	\$ -	\$100,449
Action 2.2.2 Conduct research to improve seed cleaning and storage of target and workhorse species (ongoing)	\$24,873	\$25,703	\$27,634	\$27,361	\$132,932
Action 2.3.2 Develop a genetic management plan for producers and land managers	\$117,384	\$121,297	\$134,660	\$ -	\$373,341
Action 3.1.2 Develop and maintain a website to provide access to resources about the collection, production, and application of native seed in Nevada	\$34,541	\$12,556	\$12,929	\$13,302	\$86,630
Total Cost of Level 1 Actions	\$492,070	\$296,567	\$302,229	\$171,637	\$1,434,140

* Year 4 represent recurring expenses that must be continued beyond year 4 to maintain the action.

Table 4. Level 2 – Secondary Actions

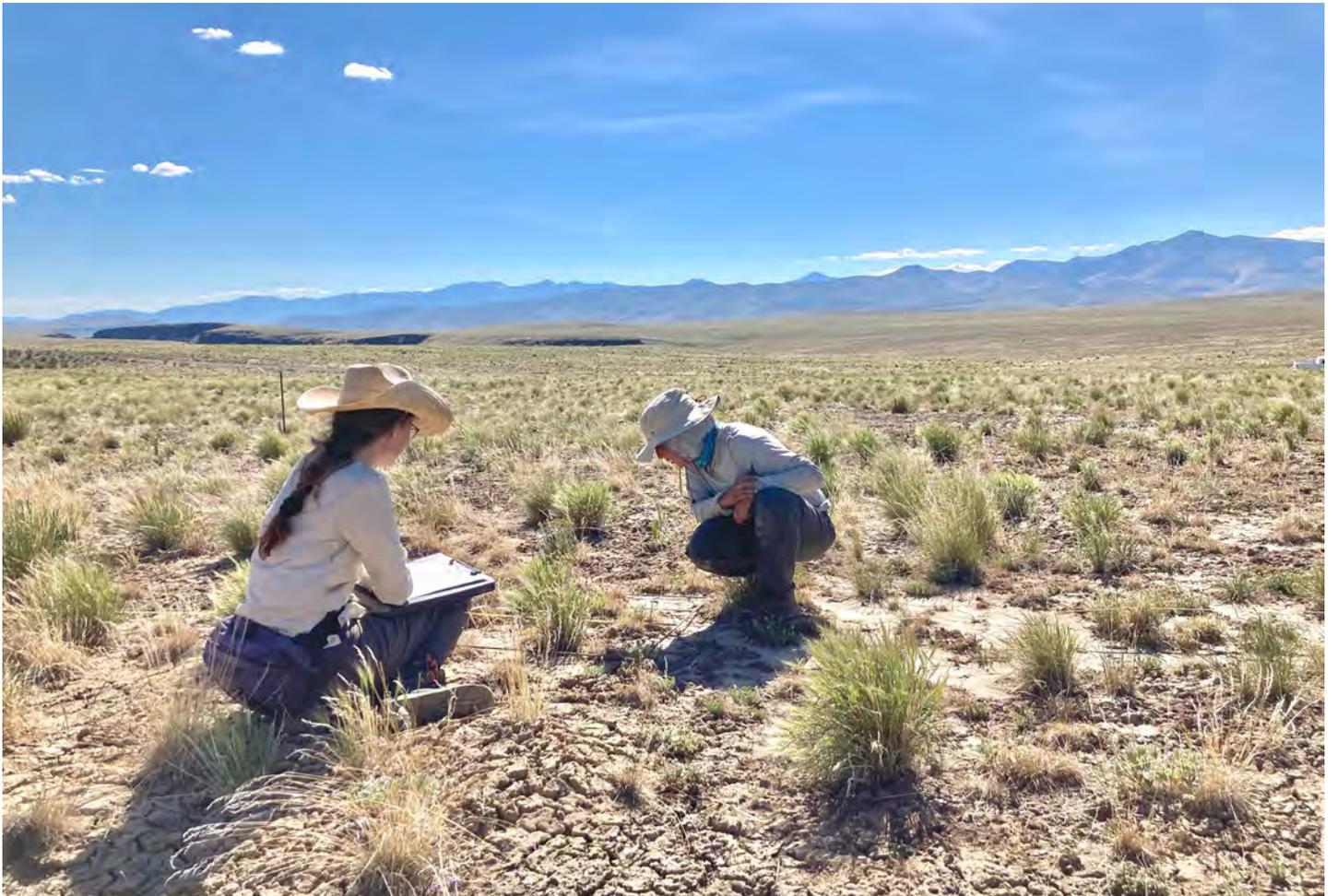
Level 2 - Secondary Actions	Year 2	Year 3	Year 4	Year 5*	5-Total Cost
Action 1.1.3 Develop a working group to create seed menus	\$76,096	\$ -	\$ -	\$ -	\$76,096
Action 1.3.5 Develop and implement shrub seed orchards	\$8,329	\$8,106	\$8,292	\$8,478	\$33,205
Action 2.1.2 Assess collections and populations of target and workhorse native shrubs, grasses and forbs sourced from Nevada for their restoration utility	\$83,878	\$76,007	\$78,137	\$80,266	\$318,288
Action 2.2.3 Develop species-specific protocols for seed and seedling production that maintain genetic diversity (ongoing)	\$75,097	\$43,004	\$44,068	\$45,133	\$207,302
Action 2.2.4 Develop site preparation, seeding, and transplanting strategies that improve plant establishment and community diversity (ongoing)	\$143,975	\$114,011	\$117,205	\$120,399	\$495,590
Action 2.2.5 Identify the most effective seed mixes for rehabilitation, reclamation and restoration (ongoing)	\$144,008	\$148,809	\$155,814	\$ -	\$448,631
Action 3.2.4 Develop trainings and materials for Federal and State contracting	\$40,575	\$ -	\$ -	\$ -	\$40,575
Total Cost of Level 2 Actions	\$571,959	\$389,936	\$403,516	\$254,276	\$1,619,687

*Year 5 represent recurring expenses that must be continued beyond year 5 to maintain the action.

Table 5. Level 3 – Planning Actions

Level 3 - Planning Actions	Year 3	Year 4	Year 5	Year 6*	5-Year Total Cost
Action 1.2.2 Expand warehouse capacity and hire a dedicated seed warehouse manager	\$555,471	\$99,862	\$102,438	\$105,014	\$757,771
Action 3.1.3 Develop trainings and resources to introduce and implement seed menus (ongoing)	\$67,072	\$19,802	\$20,441	\$21,080	\$107,315
Action 3.1.4 Develop a seed inventory system and forecasting tool for Nevada	\$11,179	\$5,776	\$5,962	\$6,148	\$22,917
Action 3.2.3 Establish a Nevada Native Seed Cooperative	\$211,747	\$168,162	\$173,103	\$178,044	\$553,012
Action 4.2.3 Organize native seed-focused field visits and tours	\$8,105	\$8,376	\$9,748	\$8,916	\$26,229
Total Cost of Level 3 Actions	\$853,574	\$301,977	\$311,692	\$319,201	\$1,467,243

* Year 6 represents recurring expenses that must be continued beyond year 6 to maintain the action.





GOAL 1

Identify seed needs, and ensure reliable availability of genetically appropriate seed.

Action 1.1.1 Identify target species for seed collection and increase by assessing planned seeding projects, intersecting with empirical and/or provisional seed zones (Level-1).

Assess seed needs across agency jurisdictions, using wildfire data, priority wildlife habitat data, and other planned treatments such as fuel breaks, mine reclamation, or transportation needs. We will identify overlap in seed needs and rank species by the quantity needed and seed zone. The NNSP will curate this information, connecting the project, and seed needs. Information will be shared with producers to support decisions about seed production and wildland collection.

Budget Justification: The action has already started to be implemented with existing funds, but full im-

plementation will create additional costs. Assessing seed needs, identifying overlap in seed needs, and ranking species requires a senior biologist/botanist at GS12 level for three months in the first year and two months in the following years. A GIS specialist at the GS9 level is also needed in year one for three months to assist the senior biologist/botanist. *The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel.* Total personnel costs for this action are \$105,516.

Total Cost for First Five Years of Implementation, more funds needed to continue: \$110,792

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP Staff

Action 1.1.1 Identify target species for seed collection and increase by assessing planned seeding projects, intersecting with empirical and/or provisional seed zones

Steps	Year 1	Year 2	Year 3	Year 4	Year 5
Assess seed needs & Identify overlap in seed needs and rank species					
Senior biologist/botanist (GS12 or equivalent) ¹					
<i>Duration (month)</i>	3	2	2	2	2
<i>Base Salary</i> ²	66,167	68,373	70,579	72,785	72,785
<i>Salary w/ benefits</i>	92,634	95,722	98,811	101,899	101,899
GIS Specialist (GS9 or equivalent) ³					
<i>Duration (month)</i>	3				
<i>Base Salary</i>	45,627				
<i>Salary w/ benefits</i>	63,878	-	-	-	-
Capital Expenditure					
Travel/Material/Operations	1,956	798	823	849	849
Totals	41,084	16,751	17,292	17,832	17,832
Total personnel cost	39,128	15,954	16,468	16,983	16,983
Total material/travel/operations cost	1,956	798	823	849	849
Total capital expenditure	-	-	-	-	-
Total cost of the action	1,084	16,751	17,292	17,832	17,832

¹ The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

² Base salary increases by 3.2% every year for the first four years on the average.

³ The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

Action 1.1.2 Identify Nevada's workhorse species

Identify species that are abundant across a wide range of ecological settings and meet the many needs of rehabilitation, reclamation, and restoration. Species will be identified in each seed zone using criteria developed by the NNSP that include elements related to the demand, cost, storage, increase, and restoration performance.

Budget Justification: This action is on-going and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP Staff

Action 1.1.2 Identify Nevada's workhorse species

This action is ongoing and there is no additional cost to implement.

Action 1.1.3 Develop a working group to create seed menus

Develop easy-to-use seed menus, giving seed users the best available information on which species and sources have the best chance for success and/or meet project objectives at any given site. Interdisciplinary teams will use tools including seed zones, disturbance response groups, ecological site descriptions, and land resource units to create seed menus at different scales (i.e., BLM district (landscape level) vs a wildland fire (project level)).

Budget Justification: Action 1.1.3 requires a senior biologist/botanist at GS12 level for two months, a post-doctoral researcher for twelve months, and a GIS specialist at GS9 level for two months in year two to develop easy-to-use seed menus. *The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel dedicated for this job.* Total personnel cost associated with the action is \$72,473.

Total Cost for full implementation: \$76,096

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: Provisional and empirical seed zones, NRCS ecological site descriptions and land resource units, UNR/NRCS disturbance response groups



Action 1.1.3 Develop a working group to create seed menus	
Steps	Year 2
Develop easy-to-use seed menus	
Senior biologist/botanist (GS12 or equivalent) ⁴	
<i>Duration (month)</i>	2
<i>Base Salary</i>	66,167
<i>Salary w/ benefits</i>	92,634
Post-doc/tech (GS9 or equivalent) ⁵	
<i>Duration (month)</i>	12
<i>Base Salary</i>	45,627
<i>Salary w/ benefits</i>	63,878
GIS Specialist(GS9 or equivalent) ⁶	
<i>Duration (month)</i>	3
<i>Base Salary</i>	45,627
<i>Salary w/ benefits</i>	63,878
Capital Expenditure	
Travel/Material/Operations	3,624
Totals	76,096
Total personnel cost	72,473
Total material/travel/operations cost	3,624
Total capital expenditure	-
Total cost of the action	76,096

⁴The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

⁵The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

⁶The action can be accomplished either in house with existing personnel by re-allocating their time or by hir-

Action 1.2.1 Determine the need and feasibility of co-locating native plant material development activities

Conduct an assessment to determine the need and feasibility of co-locating native plant material activities in Nevada, including recommended next steps and plan implementation. Co-location could promote research and development collaboration and avoid duplication of efforts and could facilitate the distribution of seeds and agronomic best practice information directly to Nevada producers.

Budget Justification: Action 1.2.1 requires a feasibility study that can be conducted by an academic scholar at GS11 level for 2 months in the first year.

There is also a need for a project manager for six months in the first two years to help coordinate the establishment of a facility capable of housing co-located agencies and organizations. Total cost associated with personnel is \$16,745. This action requires coordination between the senior leadership at all agencies involved in the establishment of the co-located facility.

Total Cost for full implementation: \$16,745

COORDINATING PARTNERS: BLM, NDA, NDF, NDOW, NRCS, UNR,

EXISTING RESOURCES: NNSP staff

Action 1.2.1 Determine the need and feasibility of co-locating native plant material development activities	
Steps	Year 1
Conduct an assessment	
Academic level - feasibility study (GS11 or equivalent)	
Duration (month)	2
<i>Base Salary</i>	55,204
<i>Salary w/ benefits</i>	77,286
Capital Expenditure	
Travel/Material/Operations	3,864
Totals	16,745
Total personnel cost	12,881
Total material/travel/operations cost	3,864
Total capital expenditure	-
Total cost of the action	16,745



Action 1.2.2 Expand warehouse capacity and hire a dedicated seed warehouse manager

Conduct an assessment to determine the best option for increasing warehouse capacity in Nevada, including recommended next steps and plan implementation. Expansion of existing warehouse capacity, seed cleaning and mixing services, and refrigerated storage is necessary for Nevada to increase in-state seed availability. A warehouse manager is crucial for managing shipping and receiving, as well as inventory management.

Budget Justification: An analyst at GS11 level should be hired for three months in the first year to conduct an assessment and develop a strategic plan for the expansion of seed warehouse capacity in Nevada. The analyst at GS11 level would have an expected cost of \$19,321. The estimated minimum capital cost for the expansion is \$435,000 in year

one. This cost may be reduced depending on whether the assessment indicates that refrigerated storage is necessary. As the warehouse expands, management becomes crucial. A warehouse manager at a GS11 responsible for coordination among storage facilities, seed cleaning, seed mixing, and seed ordering should be hired at a cost of \$409,612 for five years.

Total Cost for First Five Years of Implementation, more funds needed to continue: \$967,798

COORDINATING PARTNERS: BLM, NDA, NDF, NDOW, UNR

EXISTING RESOURCES: BLM Ely Regional Seed Warehouse, NDF seedbank, UNR seedbank



Action 1.2.2 Expand warehouse capacity and hire a dedicated seed warehouse manager					
Steps	Year 1	Year 2	Year 3	Year 4	Year 5
Conduct an assessment					
Analyst (GS11 or equivalent)					
Duration (month)	3				
<i>Base Salary</i>	55,204				
<i>Salary w/ benefits</i>	77,286	-	-	-	-
Personnel sub-total	19,321	-	-	-	-
Capital Expenditure					
Travel/Material/Operations	3,864				
Totals	23,186	-	-	-	-
Expansion of the Warehouse & Seed Cleaning and Mixing					
Manager (GS11 or equivalent)					
Duration (month)	12	12	12	12	12
<i>Base Salary</i>	55,204	57,044	58,884	60,724	60,724
<i>Salary w/ benefits</i>	77,286	79,862	82,438	85,014	85,014
Personnel sub-total	77,286	79,862	82,438	85,014	85,014
Capital Expenditure					
<i>Warehouse building and land</i>	400,000				
<i>Commercial walk-in freezer(x2)</i>	18,000				
<i>Commercial refrigerator(x2)</i>	8,000				
<i>Seed Cleaning, mixing, bagging, and testing</i>					
<i>Forklift truck</i>	9,000				
Capital Expenditure sub-total	435,000	-	-	-	-
Travel/Material/Operations	20,000	20,000	20,000	20,000	20,000
Totals	97,286	99,862	102,438	105,014	105,014
Total personnel cost	96,607	79,862	82,438	85,014	85,014
Total material/travel/operations cost	23,864	20,000	20,000	20,000	20,000
Total capital expenditure	435,000	-	-	-	-
Total cost of the action	555,471	99,862	102,438	105,014	105,014

Action 1.2.3 Establish a Nevada Foundation Seed Program and hire a dedicated manager

Conduct an assessment to determine the best option for creating and sustaining a foundation seed program in Nevada, including recommended next steps and plan implementation. A foundation seed program will provide a reliable source of foundation seed (for cultivars) or G1 and beyond seed (for pre varietal germplasm) to be used for propagation purposes by producers in Nevada and surrounding states. This will minimize transaction costs associated with producers procuring foundation seed and support the supply of certified seed produced via seed increase for restoration projects in Nevada. The manager is crucial for overseeing foundation seed program operations and interfacing with producers.

Budget Justification: An analyst at GS11 level is needed for two months in the first year for \$12,881 to determine the best strategy for creating and sustaining a foundation seed program. A foundation seed program manager at GS12 level should be hired for five years at an estimated cost of \$490,965. For website development and maintenance, a web developer at GS11 level is necessary for two months in year one and one month in the next four years for a total of \$33,536. Capital expenditures include office space, industrial freezer, and lab equipment for testing and analysis at an estimated cost of \$49,000.

*Total Cost for First Five Years of Implementation, more funds needed to continue: **\$613,250***

COORDINATING PARTNERS: NDA, NDF, UNR

EXISTING RESOURCES: NDF seed bank, UNR seed bank, NDA seed certification



⁷ Program Base salary increases by 3.2% every year for the first four years on the average

Action 1.2.3 Establish a Nevada Foundation Seed Program and hire a dedicated manager					
Steps	Year 1	Year 2	Year 3	Year 4	Year 5
Conducting assessment					
Analyst (GS11 or equivalent)					
<i>Duration (month)</i>	2				
<i>Base Salary</i>	55,204				
<i>Salary w/ benefits</i>	77,286	-	-	-	-
Foundation Seed Program Manager (GS12 or equivalent)					
<i>Duration (month)</i>	12	12	12	12	12
<i>Base Salary</i> ⁷	66,167	68,373	70,579	72,785	72,785
<i>Salary w/ benefits</i>	92,634	95,722	98,811	101,899	101,899
Personnel sub-total	105,515	95,722	98,811	101,899	101,899
Capital Expenditure					
<i>Facility (2000 sq ft. - office)</i>	40,000				
<i>Industrial freezer</i>	9,000				
Capital Expenditure sub-total	49,000	-	-	-	-
Travel/Material/Operations	5,276	4,786	4,941	5,095	5,095
Totals	159,790	100,508	103,751	106,994	106,994
Website development and maintenance					
Web developer (GS9 or equivalent)					
<i>Duration (month)</i>	2	1	1	1	1
<i>Base Salary</i>	45,627	47,147	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,006	68,137	70,266	70,266
Personnel sub-total	10,646	5,500	5,678	5,856	5,856
Capital Expenditure					
Travel/Material/Operations	532	275	284	293	293
Totals	11,179	5,776	5,962	6,148	6,148
Total personnel cost	116,161	101,223	104,489	107,755	107,755
Total material/travel cost	5,808	5,061	5,224	5,388	5,388
Total capital expenditure	49,000	-	-	-	-
Total cost of the action	170,969	106,284	109,713	113,142	113,142

Action 1.3.1 Expand seed collection and source identification efforts in Nevada

Establish target goals and increase field collection and source identification of native seed for use in seed zone development, seed production, restoration, research, breeding, and conservation. This action will include training seed collection teams in the Seeds of Success (SOS) program (a national native seed collection effort; BLM 2018) and the Great Basin and/or Mojave SOS protocol to increase seed collection capacity and research opportunities (Table 1). We will coordinate the collection and source identification efforts with the MDNPP and NNSP. Target species for collection will be identified under Action 1.1.1.

Table 1. Types of Seed collections made in Nevada

Type of Collection	Description	Number of Pure Live Seeds (PLS) estimated	Collection Partners
Research	Research collections for empirical seed zone development	2,000 – 3,000 (min. 1,000)	SOS team
Standard SOS	Conservation collections following national SOS protocols	2,500 – 10,000 (min. 2,500, but ideally 10,000 ¹)	SOS team
Operational or Restoration SOS	Restoration collections to be used for commercial increase	70,000 or greater. Approx. 1.0 lbs or greater for forbs and	SOS team, NDF Conservation Crews, and NDA Source Id

Budget Justification: This action is on-going and requires continued funding to continue support for the Great Basin Seeds of Success Coordinator and Seeds of Success collection teams

COORDINATING PARTNERS: BLM, GBI, NDA, NDF, NDOW, USFS, USFWS

EXISTING RESOURCES: BLM SOS Great Basin Coordinator, SOS technicians, NDA source identification, NDF Conservation Crews, ArcGIS online and apps, herbarium collections

Action 1.3.1 Expand seed collection and source identification efforts in Nevada

This action is on-going and it does not require any additional cost to implement.

Action 1.3.2 Maintain and expand the internal ArcGIS online database for seed collection tracking and reporting

Maintain and expand the ArcGIS online database used for tracking and reporting seed collections. Mobile apps (e.g. ArcCollector and Survey123) will allow seed collection teams to collect and update seed collection information and the NNSP will receive real-time tracking to inform collection prioritization and coordination. ArcGIS online will be maintained by Federal agencies and updated as new technologies and apps are developed. Annual reports on seed collection efforts will be generated from this data.

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: BLM, GBI, USFS, USFWS

EXISTING RESOURCES: ArcGIS online and apps, iPads

Action 1.3.2 Maintain and expand the internal ArcGIS online database for seed collection tracking and reporting

This action is on-going and it does not require any additional cost to implement.







Action 1.3.3 Improve interagency permitting for seed collection

Improve Federal and State agency permitting for seed collection in Nevada. We will develop Programmatic National Environmental Policy Act (NEPA) documents to streamline the permit process. Factsheets that outline agency contacts and the permitting process will also be developed. This effort also aims to gain a better understanding of how much and where wildland seed collection is occurring in the Great Basin and Mojave.

Budget Justification: This action involves senior level leadership. In addition, a NEPA analyst at GS 11/12 level is needed to develop programmatic NEPA documents for 12 months in year one and 2 months in year two. To develop factsheets, an analyst at the GS9 level is needed for one month in year one. The personnel cost associated with the analyst is \$95,919.

Total Cost for full implementation: \$100,449

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP staff

Action 1.3.3 Improve interagency permitting for seed collection		
Steps	Year 1	Year 2
Improve Federal and State agency permitting		
This sub-action is on-going and it does not require any additional cost to implement.		
Develop Programmatic NEPA documents		
NEPA Analyst (GS 11 or equivalent) ⁸		
<i>Duration (month)</i>	12	2
<i>Base Salary⁹</i>	55,204	57,044
<i>Salary w/ benefits</i>	77,286	79,862
Personnel sub-total	77,286	13,310
Capital Expenditure		
Travel/Material/Operations	3,864	666
Totals	81,150	13,976
Develop factsheets		
Analyst (GS9 or equivalent) ¹⁰		
<i>Duration (month)</i>	1	
<i>Base Salary</i>	45,627	
<i>Salary w/ benefits</i>	63,878	-
Personnel sub-total	5,323	-
Capital Expenditure		
Travel/Material/Operations	266	
Totals	5,589	-
Total personnel cost	82,609	13,310
Total material/travel/operations cost	3,864	666
Total capital expenditure	-	-
Total cost of the action	86,473	13,976

⁸ The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

⁹ Base salary increases by 3.2% every year for the first four years on the average.

¹⁰ The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

Action 1.3.4 Develop Best Management Practices for seed collection in Nevada

Develop Best Management Practices (BMPs) for seed collection. BMPs will identify and address topics such as Optimal collection site location for different types of seed collection (e.g. SOS, commercial, research), recommended frequency of operational or restoration sized collections, species not appropriate for collection (e.g. rare species, poor seed set), plant phenology, collection quantity, collection quality, collection techniques, collection vessels, and storage.

Budget Justification: This action is ongoing and there is no additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP staff

Action 1.3.4 Develop Best Management Practices for seed collection in Nevada
This action is on-going, and it does not require any additional cost to implement.

Action 1.3.5 Develop and implement shrub seed orchards

Increase the reliable supply of genetically appropriate native seed through the creation of shrub orchards (e.g. sagebrush, bitterbrush, white bursage, creosote) for commercial seed harvesting. Orchards can be established on public, tribal, and private lands and will be maintained for annual seed collection.

Budget Justification: Action 1.3.5 involves hiring an orchard manager at GS9 level for one month in years two through six at a cost of \$28,213. The total cost of capital expenditures is estimated to be \$12,060 for 10 acres of irrigated land, drill seeding costs, initial sagebrush seeding and transplant.

Total Cost for First Five Years of Implementation, more funds needed to continue: \$41,683

COORDINATING PARTNERS: NDF, NRCS, UNR, WBC

EXISTING RESOURCES: UNR land, WBC land, NRCS Great Basin Plant Materials Center, NRCS Tucson Plant Materials Center, NDF nurseries, tribal, state, and federal lands



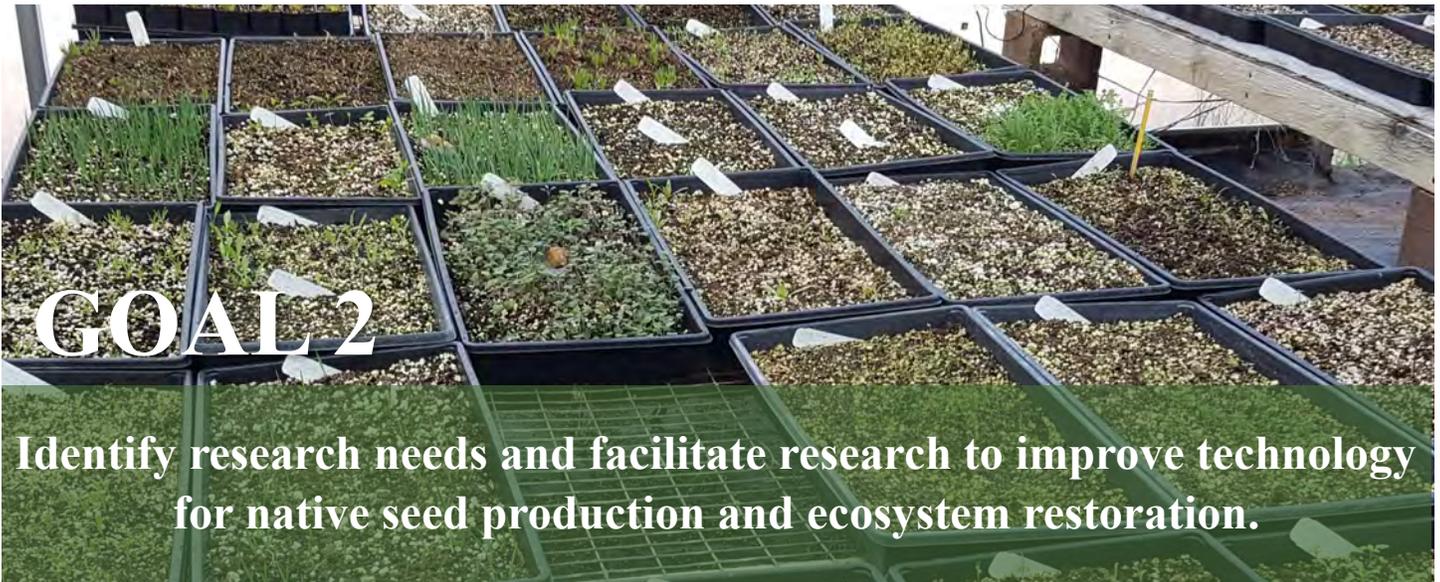
Action 1.3.5 Develop and implement shrub seed orchards					
Steps	Year 2	Year 3	Year 4	Year 5	Year 6
Increase the reliable supply of genetically appropriate native seed					
Orchard Manager (GS9 or equivalent)					
<i>Duration (month)</i>	1	1	1	1	1
<i>Base Salary¹¹</i>	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	8,137	70,266	70,266
Capital Expenditure		-	-	-	-
<i>10 acres of irrigated land</i>	1,830	1,830	1,830	1,830	1,830
<i>Drill seeding costs¹²</i>	190	-	-	-	-
<i>Initial sagebrush seeding¹³</i>	220	-	-	-	-
<i>Initial sagebrush transplant¹⁴</i>	500	500	500	500	500
Travel/Material/Operations	266	275	284	293	293
Totals					
Total personnel cost	5,323	5,501	5,678	5,856	5,856
Total material/travel/operations cost	266	275	284	293	293
Total capital expenditure	2,740	2,330	2,330	2,330	2,330
Total cost of the action	8,329	8,106	8,292	8,478	8,478

¹¹Base salary increases by 3.2% every year for the first four years on the average.

¹²Using land currently owned by a State, Federal, or University partner may be an option for siting the seed orchard. We use the \$183/Acre annual rental rate for irrigated cropland in Washoe county in 2016 reported in the USDA National Agricultural Statistics Service's county-level "Cash Rents Survey" (<https://onpasture.com/2017/04/17/pasture-rental-rates-by-county-in-the-united-states/>).

¹³The \$19 per acre for drill seeding is taken from the USDA Natural Resource Service's Range Planting scenario descriptions for Colorado and includes equipment, power unit, and labor costs (https://efotg.sc.egov.usda.gov/references/Agency/CO/Archived_550_160125.pdf).

¹⁴The price of \$44 per pound of pure live seed (PLS) is the average price paid for Wyoming big sagebrush seed by the Utah Division of Wildlife Resources from 2005-2013 (private communications). The seeding rate 0.5 lbs of PLS per acre is the seeding rate recommended in the USDA Natural Resource Service's Plant Materials Technical Note on big sagebrush establishment (https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/mtpmstn10619.pdf). The initial cost of plant material would be higher if sagebrush transplants were used rather than seed.



GOAL 2

Identify research needs and facilitate research to improve technology for native seed production and ecosystem restoration.

Action 2.1.1 Develop lists of target native plant species

Develop and prioritize species for seed production and restoration. The NNSP will first determine criteria for identifying target species, and then review existing scientific literature and datasets, conduct interviews with experts, and have discussions with restoration practitioners to gather the relevant information. This action will result in a suite of target species for various habitats, which can then be prioritized for production, research, and restoration.

Budget Justification: This action is on-going and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP staff, herbarium collections, Western Forbs: Biology, Ecology, and Use in Restoration Manual, GBNPP annual reports, NRCS Plant Materials Program manuals and guides, USGS Land Treatments Digital Library

Action 2.1.2 Assess collections and populations of target and workhorse native shrubs, grasses and forbs sourced from Nevada for their restoration utility (Level 2)

Because of local adaptation, species and populations differ in many characteristics, and screening trials can identify which seed sources are the best at establishing under realistic field scenarios. Testing may include management-scale seedings, genetic analysis, laboratory, greenhouse and small-plot field tests. Assessment will ideally cover plant performance during all stages of a plant life cycle and testing the most effective methods for establishment, including testing new agricultural technology in rangeland restoration settings.

Budget Justification: This action item is a multi-agency effort. It has already started being implemented but will require additional resources to be successfully completed. A research technician/farm manager at GS9 level is needed full time for years two through six for screening trials, testing and assessment.

Action 2.1.1 Develop lists of target native plant species

This action is on-going and it does not require any additional cost to implement.

The total estimated cost associated with personnel is \$338,554. This action can be accomplished using existing capital and equipment. See Action 1.2.1 for description of potential efficiencies and cost savings associated with co-location of native plant material development and research activities.

EXISTING RESOURCES: UNR faculty, students, and facilities, WBC land, NDF nurseries, federal and state lands, common garden network (some sites established), GBNPP, MDNPP

Total Cost for First Five Years of Implementation, more funds needed to continue: \$355,481

COORDINATING PARTNERS: NNSP



Action 2.1.2 Assess collections and populations of target and workhorse native shrubs, grasses and forbs sourced from Nevada for their restoration utility					
Steps	Year 2	Year 3	Year 4	Year 5	Year 6
Conduct assessment					
Research tech./farm manager (GS9 or equivalent) ¹⁵					
<i>Duration (month)</i>	12	12	12	12	12
<i>Base Salary</i> ¹⁶	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	68,137	70,266	70,266
Travel/Material/Operations ¹⁷	20,000	10,000	10,000	10,000	10,000
Totals	67,072	69,308	71,543	73,779	73,779
Total personnel cost	63,878	66,007	68,137	70,266	70,266
Total material/travel/operations cost	20,000	10,000	10,000	10,000	10,000
Total capital expenditure	-	-	-	-	-
Total cost of the action	83,878	76,007	78,137	80,266	80,266

¹⁵The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

¹⁶Base salary increases by 3.2% every year for the first four years on the average.

¹⁷Operation costs include the costs of purchasing specialized equipment to perform screening trials, testing and assessment.

Action 2.2.1 Create an integrated and streamlined implementation plan for research

Quantitatively evaluating the effectiveness of native seeds and their application in real-world restoration settings against business-as-usual approaches is critical to understanding on-going research needs and market scalability. Managers are challenged to incorporate such experiments into planning for a number of reasons. For example, Emergency Stabilization and Rehabilitation (ES&R) and/or Burned Area Emergency Response (BAER) plans are ideal for integrating research, however, time constraints for submitting plans can hinder experimentation.

The NNSP will establish cooperative agreements and policies to facilitate experiment implementation and data collection to answer research questions. This pre-planning exercise will also allow us to conduct multiple trials and experiments in a coordinated fashion. Annual meetings will be held to coordinate research priorities and identify synergies.

Budget Justification: This action is on-going and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP staff

Action 2.2.1 Create an integrated and streamlined implementation plan for research

This action is on-going and it does not require any additional cost to implement.

Action 2.2.2 Conduct research to improve seed cleaning and storage of target and workhorse species (Level 1)

Maintaining availability of viable seed is crucial for successful restoration, and correct cleaning and storage protocols can improve viability and extend the life of seeds, stabilizing availability. Development of reliable species-specific protocols for maintaining seed quality and viability during seed cleaning and storage are required to ensure that seed reserves are available when needed.

Budget Justification: This action has already started being implemented but will require additional resources to be successfully completed. A technician at GS9 level is needed for three months a year and GS12 level senior biologist/botanist for a month in each year is required for five years at a cost of \$126,602 to develop reliable species-specific protocols.

Total Cost for First Five Years of Implementation, more funds needed to continue: \$132,932

COORDINATING PARTNERS: BLM, NDF, NRCS, TNC, UNR, USFS, WBC

EXISTING RESOURCES: Western Forbs: Biology, Ecology, and Use in Restoration Manual, GBNPP annual reports, NRCS Plant Materials Program manuals and guides, USFS Bend Seed Extractory protocols, U.S. Department of Agriculture (USDA) Woody Plant Seed Manual



Action 2.2.2 Conduct research to improve seed cleaning and storage of target and workhorse species

Steps	Year 1	Year 2	Year 3	Year 4	Year 5
Develop protocols					
Senior biologist/botanist (GS12 or equivalent)					
<i>Duration (month)</i>	1	1	1	1	1
<i>Base Salary¹⁸</i>	66,167	68,373	79,579	72,785	72,785
<i>Salary w/ benefits</i>	92,634	95,722	111,411	101,899	101,899
Technician (GS9 or equivalent)					
<i>Duration (month)</i>	3	3	3	3	3
<i>Base Salary¹⁹</i>	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	68,137	70,266	70,266
Capital Expenditure					
Travel/Material/Operations	1,184	1,224	1,316	1,303	1,303
Totals	24,873	25,703	27,634	27,361	27,361
Total personnel cost	23,689	24,479	26,318	26,058	26,058
Total material/travel/operations cost	1,184	1,224	1,316	1,303	1,303
Total capital expenditure	-	-	-	-	-
Total cost of the action	24,873	25,703	27,634	27,361	27,361

¹⁸Base salary increases by 3.2% every year for the first four years on the average.

¹⁹Base salary increases by 3.2% every year for the first four years on the average.

Action 2.2.3 Develop species-specific protocols for seed and seedling production that maintain genetic diversity (Level 2)

Research is needed to aid producers in propagating seed and nursery seedlings efficiently and economically while maintaining genetic diversity. An assessment of target species, current research, and production practices will be conducted to identify knowledge gaps for individual species. Combining research with agricultural technology will help fill these knowledge gaps to develop production practices for Nevada's target and workhorse rehabilitation, reclamation, and restoration species.

Budget Justification: This action has already started being implemented but will require additional resources to be successfully completed. This is a multi-agency effort. A senior biologist/botanist at GS12 level is needed for 3 months in year two at \$23,158. Also, a researcher at GS9 level should be employed for six months in years two through six at \$169,277.

This action can be accomplished in house by current NNSP researchers if additional funding is made available. Capital expenditures, including land, lab, cleaning and farming equipment, add up to \$60,000.

Total Cost for First Five Years of Implementation, more funds needed to continue: \$252,435

COORDINATING PARTNERS: NNSP, GBNPP, MDNPP

EXISTING RESOURCES: Provisional and empirical seed zones, peer-reviewed models and research describing best practices for maintaining diversity, Seeds of Success collection protocol, Western Forbs: Biology, Ecology, and Use in Restoration Manual, Association of Official Seed Certifying Agencies (AOSCA) guidelines, NRCS Plant Materials Program manuals and guides, USDA Woody Plant Seed Manual



Action 2.2.3 Develop species-specific protocols for seed and seedling production that maintain genetic diversity					
Steps	Year 2	Year 3	Year 4	Year 5	Year 6
Assessment of target species & re-research					
Senior biologist/botanist (GS12 or equivalent) ²⁰					
<i>Duration (month)</i>	3				
<i>Base Salary</i> ²¹	66,167				
<i>Salary w/ benefits</i>	92,634	-	-	-	-
Post-doc (GS9 or equivalent) ²²					
<i>Duration (month)</i>	6	6	6	6	6
<i>Base Salary</i> ²³	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	68,137	70,266	70,266
Travel/Material/Operations ²⁴	20,000	10,000	10,000	10,000	10,000
Totals	57,852	34,654	35,772	36,890	36,890
Total personnel cost	55,097	33,004	34,068	35,133	35,133
Total material/travel/operations cost	20,000	10,000	10,000	10,000	10,000
Total capital expenditure	-	-	-	-	-
Total cost of the action	75,097	43,004	44,068	45,133	45,133

²⁰The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

²¹Base salary increases by 3.2% every year for the first four years on the average.

²²The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

²³Base salary increases by 3.2% every year for the first four years on the average.

²⁴Operation costs include the costs of purchasing specialized equipment to perform screening trials, testing and assessment.



Action 2.2.4 Develop site preparation, seeding, and transplanting strategies that improve plant establishment and community diversity (Level 2)

There is a need to identify issues limiting successful restoration from seed or transplants and prioritize needed research activities to overcome these barriers. Broad research topics will include: factors limiting plant establishment, seed technologies, species interactions (among natives and between natives and nonnatives), and strategies for meeting challenging restoration situations such as wildland fire, annual invasive monocultures, and over utilization by livestock or wild horses and burros.

Budget Justification: This is a multi-agency effort. This action has already started being implemented but will require additional resources to be successfully completed. A senior biologist/botanist at GS12 level or equivalent for three months in year six, a GS11 level post-doctoral researcher full time, and a GS9 level technician for six months (seasonal) are needed full time in years two through six at

\$530,989. This action can be accomplished in house by current NNSP researchers if additional funding is made available. Cost associated with materials, travel, and operations are \$85,000 in total.

*Total Cost for First Five Years of Implementation, more funds needed to continue: **\$615,989***

COORDINATING PARTNERS: NNSP, GBNPP, MDNPP

EXISTING RESOURCES: Peer-reviewed scientific papers, USGS Land Treatments Digital Library, Western Forbs: Biology, Ecology, and Use in Restoration Manual, GBNPP annual reports, MDNPP, USDA Woody Plant Seed Manual

Action 2.2.4 Develop site preparation, seeding, and transplanting strategies that improve plant establishment and community diversity					
Steps	Year 2	Year 3	Year 4	Year 5	Year 6
identify issues limiting successful restoration & prioritize needed research activities					
Senior biologist/botanist (GS12 or equivalent) ²⁵					
<i>Duration (month)</i>	3				
<i>Base Salary</i>	66,167				
<i>Salary w/ benefits</i>	92,634	-	-	-	-
Post-doc (GS9 or equivalent) ²⁶					
<i>Duration (month)</i>	12	12	12	12	12
<i>Base Salary</i> ²⁷	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	68,137	70,266	70,266
Technician (GS9 or equivalent) ²⁸					
<i>Duration (month)</i>	6	6	6	6	6
<i>Base Salary</i> ²⁹	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	68,137	70,266	70,266
Travel/Material/Operations ³⁰	25,000	15,000	15,000	15,000	15,000
Totals	124,924	103,961	107,315	110,669	110,669
Total personnel cost	118,975	99,011	102,205	105,399	105,399
Total material/travel/operations cost	25,000	15,000	15,000	15,000	15,000
Total capital expenditure	-	-	-	-	-
Total cost of the action	143,975	114,011	117,205	120,399	120,399

²⁵The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

²⁶The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

²⁷Base salary increases by 3.2% every year for the first four years on the average.

²⁸The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

²⁹Base salary increases by 3.2% every year for the first four years on the average.

³⁰Operation costs include the costs of purchasing specialized equipment to perform screening trials, testing and assessment.

Action 2.2.5 Identify the most effective seed mixes for rehabilitation, reclamation, and restoration (Level 2)

Optimizing seed mixes by including species and populations that are complementary in resource use could improve restoration by promoting facilitative, rather than competitive interactions, and ultimately increase site productivity and restoration success. Researchers will examine available retrospective data to evaluate short- and long-term responses of seed mixes and environmental conditions to characterize establishment and longevity of species at treatment sites and develop BMPs and guidelines for developing seed mixes.

Budget Justification: This action has already started being implemented but will require additional resources to be successfully completed. A senior biologist/botanist at GS12 level for 2 months, a post-doctoral scholar at GS9 level full time, and a gradu-

ate student at GS8 level full time in years two through four at \$427,268. *This action can be accomplished in house by current NNSP researchers if additional funding is made available.*

Total Cost for full implementation: \$448,632

COORDINATING PARTNERS: NNSP, GBNPP, MDNPP

EXISTING RESOURCES: USGS Land Treatments Digital Library, ES&R and BAER plans, provisional and empirical seed zones, Science Framework for Conservation and Restoration of the Sagebrush Biome (Part 2), Western Forbs: Biology, Ecology, and Use in Restoration Manual, GBNPP annual reports, MDNPP, NRCS ecological site descriptions and land resource units, UNR/NRCS disturbance response groups



Action 2.2.5 Identify the most effective seed mixes for rehabilitation, reclamation and restoration

Steps	Year 2	Year 3	Year 4	Year 5	Year 6
Optimizing seed mixes, examining available data & developing BMP guidelines					
Senior biologist/botanist (GS12 or equivalent) ³¹					
<i>Duration (month)</i>	2	2	2		
<i>Base Salary</i> ³²	66,167	68,373	79,579		
<i>Salary w/ benefits</i>	92,634	95,722	111,411		
Post-doc (GS9 or equivalent) ³³					
<i>Duration (month)</i>	12	12	12		
<i>Base Salary</i> ³⁴	45,627	47,148	48,669		
<i>Salary w/ benefits</i>	63,878	66,007	68,137		
Graduate Student (GS8 or equivalent) ³⁵					
<i>Duration (month)</i>	12	12	12		
<i>Base Salary</i> ³⁶	41,310	42,687	44,064		
<i>Salary w/ benefits</i>	57,834	59,762	61,690		
Capital Expenditure					
Travel/Material/Operations	6,858	7,086	7,420		
Totals	148,008	148,809	155,814		
Total personnel cost	137,151	141,723	148,395		
Total material/travel/operations cost	6,858	7,086	7,420		
Total capital expenditure	-	-	-		
Total cost of the action	148,008	148,809	155,814		

³¹The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

³²Base salary increases by 3.2% every year for the first four years on the average.

³³The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

³⁴Base salary increases by 3.2% every year for the first four years on the average.

³⁵The action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel or by a contractor.

³⁶Base salary increases by 3.2% every year for the first four years on the average.

Action 2.3.1 Conduct common gardens and genetic analyses for target and workhorse species

Common gardens and genetic analyses are complementary efforts that help practitioners understand the distribution of adaptive genetic diversity. To complement and expand on existing common garden collaborations, we will identify a series of locations across Nevada's diverse habitats where common gardens can be implemented for multiple target species. A coordinated network would have the benefit of streamlining site preparation and maintenance, permitting and environmental clearance, data collection, and comparability among studies.

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP, GBNPP, MDNPP

EXISTING RESOURCES: Common garden network (some sites established), plant tissue collection by SOS teams using USFS collection protocols, herbarium collections, protocols for creating seed zones from common garden experiment data, provisional and empirical seed zones, information on genetic diversity and distribution for a small number of species, Western Forbs: Biology, Ecology, and Use in Restoration Manual

Action 2.3.1 Conduct common gardens and genetic analyses for target and workhorse species

This action is on-going and it does not require any additional cost to implement.

Action Item 2.3.2 Develop a genetic management plan for producers and land managers (Level 2)

Genetic diversity can be altered at multiple phases of the restoration process, including the initial seed collection, seed production and increase, and project level seed use. We will develop a genetic management plan for workhorse and target plants, reflecting the unique biology and seed transfer guidance of each species, for each of these phases, with the goal of leveraging genetic diversity for restoration needs.

Budget Justification: A senior biologist/botanist at the GS12 level and a postdoctoral researcher at the GS9 level are needed full time at \$355,563 over three years. It is likely that the GS12 work will be conducted by multiple senior biologists/botanists across different institutions (e.g., GBNPP, USGS, UNR) rather than by a single individual. *This team of senior biologists/botanists could include current NNSP researchers if additional funding is made available.*

Total Cost for full implementation: \$373,341

COORDINATING PARTNERS: NNSP, GBNPP, MDNPP

EXISTING RESOURCES: Common garden network (some sites established), plant tissue collection by SOS teams using FS collection protocols, herbarium collections, protocols for creating seed zones from common garden experiment data, provisional seed zones, empirical seed zones for many common species, information on genetic diversity and distribution for a small number of species, Western Forbs: Biology, Ecology, and Use in Restoration Manual, NRCS Plant Materials Program manuals and guides, Association of Official Seed Certifying Agencies (AOSCA) guidelines

Action 2.3.2 Develop a genetic management plan for producers and land managers			
Steps	Year 1	Year 2	Year 3
Develop a genetic management plan for workhorse and target plants			
Senior biologist/botanist (GS12 or equivalent)			
<i>Duration (month)</i>	12	12	12
<i>Base Salary</i> ³⁷	66,167	68,373	79,579
<i>Salary w/ benefits</i>	66,167	68,373	79,579
Post-doc (GS9 or equivalent)			
<i>Duration (month)</i>	12	12	12
<i>Base Salary</i> ³⁸	45,627	47,148	48,669
<i>Salary w/ benefits</i>	45,627	47,148	48,669
Capital Expenditure			
Travel/Material/Operations	5,590	5,776	6,412
Totals	117,384	121,297	134,660
Total personnel cost	111,794	115,521	128,248
Total material/travel/operations cost	5,590	5,776	6,412
Total capital expenditure	-	-	-
Total cost of the action	117,384	121,297	134,660

³⁷Base salary increases by 3.2% every year for the first four years on the average.

³⁸Base salary increases by 3.2% every year for the first four years on the average.



GOAL 3

Develop and implement tools that enable managers and producers to make decisions about collecting, increasing, and using genetically appropriate seed.

Action 3.1.1 Identify, update, and develop guides, protocols, and factsheets for production and application of native seed in Nevada

Identify existing and needed restoration guides, protocols, and factsheets about seed collection, production, and application of native seed. The NNSP will compile existing materials, revise outdated ones, and develop new ones to create a restoration portfolio that can be used by the NNSP and other partners.

Budget Justification: This action is on-going and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: Western Forbs: Biology, Ecology, and Use in Restoration Manual, NRCS Plant Materials Program manuals and guides, NDA and UNR Cooperative Extension outreach materials, AOSCA guidelines, GBNPP annual reports, MDNPP, USDA Woody Plant Seed Manual

Action 3.1.1 Identify, update, and develop guides, protocols, and factsheets for production and application of native seed in Nevada

This action is on-going and it does not require any additional cost to implement.

Action 3.1.2 Develop and maintain a website to provide access to resources about the collection, production, and application of native seed in Nevada (Level 1)

Develop and maintain a NNSP website that will provide public access to a wide array of resources, guides, protocols, and factsheets on the collection, production, and application of native seed. The website will also feature links to provisional and empirical seed zone maps and scientific publications on native seed, and incorporate a seed-needs function that allows users to identify target species for collections, production, and/or restoration.

Budget Justification: A web developer/ website manager is responsible for developing and maintaining a NNSP website six months in the first year and for 2 months in year two through five at \$77,718.

Total Cost for First Five Years of Implementation, more funds needed to continue: \$86,629

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: IT teams at various NNSP offices

Action 3.1.2 Develop and maintain a website to provide access to resources about the collection, production, and application of native seed in Nevada

Steps	Year 1	Year 2	Year 3	Year 4	Year 5
Develop and maintain a NNSP website					
Web developer/Website manager (GS9 or equivalent)					
<i>Duration (month)</i>	6	2	2	2	2
<i>Base Salary³⁹</i>	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	68,137	70,266	70,266
Capital Expenditure					
<i>Domain registration cost⁴⁰</i>	10	10	10	10	10
<i>SSL cost⁴¹</i>	995	995	995	995	995
Travel/Material/Operations	1,597	550	568	586	586
Totals	36,541	12,556	12,929	13,302	13,302
Total personnel cost	31,939	11,001	11,356	11,711	11,711
Total material/travel/operations cost	1,597	550	568	586	586
Total capital expenditure	1,005	1,005	1,005	1,005	1,005
Total cost of the action	34,541	12,556	12,929	13,302	13,302

³⁹Base salary increases by 3.2% every year for the first four years on the average.

⁴⁰Source: <https://www.websitebuilderexpert.com/building-websites/domain-name-cost/>

⁴¹Source: <https://www.chargebee.com/blog/options-ssl-certificate-cost/>

Action 3.1.3 Develop trainings and resources to introduce and implement seed menus (Level 3)

The NNSP will develop trainings and resources on seed menus and other tools, implement these trainings for land managers, practitioners, producers, and stakeholders.

Budget Justification: This is a multi-agency effort. This action has already started being implemented but will require additional resources to be successfully completed. A GS9 level biologist/botanist is needed to develop trainings and resources full time in year three and for 3 months in year four through seven at \$132,547.

Total Cost for First Five Years of Implementation, more funds needed to continue: \$149,474

COORDINATING PARTNERS: BLM, NDA, NRCS, USFS, USFWS

EXISTING RESOURCES: NNSP staff, Seedlot Selection Tool (USFS, Oregon State University, and Conservation Biology Institute), Provisional and empirical seed zones, NRCS ecological site descriptions and land resource units, UNR/NRCS disturbance response groups

Action 3.1.3 Develop trainings and resources to introduce and implement seed menus					
Steps	Year 3	Year 4	Year 5	Year 6	Year 7
Develop trainings and resources & implement					
Biologist/botanist (GS9 or equivalent)					
<i>Duration (month)</i>	12	3	3	3	3
<i>Base Salary⁴²</i>	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	68,137	70,266	70,266
Capital Expenditure					
Travel/Material/Operations	3,194	3,300	3,407	3,513	3,513
Totals	82,457	35,187	35,826	36,465	36,465
Total personnel cost	63,878	16,502	17,034	17,567	17,567
Total material/travel/operations cost	3,194	3,300	3,407	3,513	3,513
Total capital expenditure	15,385	15,385	15,385	15,385	15,385
Total cost of the action	82,457	35,187	35,826	36,465	36,465

⁴²Base salary increases by 3.2% every year for the first four years on the average

Action 3.1.4 Develop a seed inventory system and forecasting tool for Nevada (Level 3)

Create a dynamic tool that links multiple databases to develop a Nevada seed inventory system, including forecasting tools. The seed inventory system will help forecast and predict seed needs and identify critical seeding areas as well as provide updates of seed availability and a list of commercial producers and nurseries. This tool will also help to stabilize the market allowing producers to forecast and predict desired species for rehabilitation, reclamation, and restoration. In the short term, our best available data will be provided to help determine future demand based on past purchases of seed and predictions of future needs.

Budget Justification: A computer scientist/data scientist at GS12 level should be hired for six months in year one and for one month in the years two through five. Also, a website developer at the GS9 level is needed for 2 months in year one and for one month in years three through five. Total personnel cost is estimated to be \$33,536.

Total Cost for First Five Years of Implementation, more funds needed to continue: \$35,213

COORDINATING PARTNERS: BLM, NDA, NDF, NDOW, USFS, USFWS

EXISTING RESOURCES: BLM inventory and seed warehouse reporting, NDA seed certification program, NDF purchasing, sales, and inventory records, NDOW seed purchasing records, USFS seed purchasing records, USFWS seed purchasing records

Action 3.1.4 Develop a seed inventory system and forecasting tool for Nevada					
Steps	Year 3	Year 4	Year 5	Year 6	Year 7
Create a dynamic tool					
Computer scientist/data scientist (GS12 or equivalent)					
<i>Duration (month)</i>	6	1	1	1	1
<i>Base Salary⁴³</i>	66,167	68,373	79,579	72,785	72,785
<i>Salary w/ benefits</i>	92,634	95,722	111,411	101,899	101,899
Web developer (GS9 or equivalent)					
<i>Duration (month)</i>	2	1	1	1	1
<i>Base Salary⁴⁴</i>	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	68,137	70,266	70,266
Capital Expenditure					
Travel/Material/Operations	532	275	284	293	293
Totals	11,179	5,776	5,962	6,148	6,148
Total personnel cost	10,646	5,501	5,678	5,856	5,856
Total material/travel/operations cost	532	275	284	293	293
Total capital expenditure	-	-	-	-	-
Total cost of the action	11,179	5,776	5,962	6,148	6,148

⁴³Base salary increases by 3.2% every year for the first four years on the average.

⁴⁴Base salary increases by 3.2% every year for the first four years on the average.

Action 3.2.1 Identify or develop contracting methods that promote certainty and stability for producers and buyers

Investigate contracting methods that minimize the problems associated with inter-annual variability in demand for native seeds and geographic variation in seed use, which create market uncertainty. Contracting methods could include risk-sharing contracts that provide financial incentives from producers to users, and longer-term (3-5 year) contracts. Contract innovation for purchasing procedures and active coordination between land managers and producers can mitigate market risk, resulting in better restoration outcomes and a more stable market.

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: BLM, NCDP, NDF, NDOW, NRCS, USFS

EXISTING RESOURCES: Federal indefinite delivery/indefinite quantity (IDIQ) contracts, Good of the State contracts, Nevada Shared Stewardship Agreement

Action 3.2.1 Identify or develop contracting methods that promote certainty and stability for producers and buyers

This action is on-going and it does not require any additional cost to implement.

Action 3.2.2 Create a streamlined approach for procuring native seed

Coordination is critical for increasing availability, lowering costs, and stabilizing demand for native seed. Under this action, we will identify the mechanisms and tools needed to streamline procurement and communication between Federal and State agencies (e.g. interagency agreements, Good Neighbor authorities). Improved procurement between agencies will also encourage existing and new producers to meet seed needs through mechanisms such as indefinite delivery/indefinite quantity contracts, blanket purchase agreements, and permitting practices.

Budget Justification: This action requires senior-level discussion. Work on developing a coordinated, streamlined approach to procuring native seeds is on-going and no additional resources or costs are required to implement this action.

COORDINATING PARTNERS: BLM, NDA, NDF, NDOW, NRCS, USFS, USFWS

EXISTING RESOURCES: Federal IDIQ contracts, Good of the State contracts, Nevada Shared Stewardship Agreement, NRCS Environmental Quality Incentives Program (EQIP)

Action 3.2.2 Create a streamlined approach for procuring native seed

This action is on-going and it does not require any additional cost to implement.



Action 3.2.3 Establish a Nevada Native Seed Cooperative (Level 3)

Investigate models for successful seed cooperatives from other regions, and make recommendations for how to create a seed cooperative for Nevada that addresses both Great Basin and Mojave species. A seed cooperative can mitigate some of the effort and cost of entering the native seed industry by providing shared operational support and resources (including foundation seeds, planting and harvesting equipment), shared infrastructure for seed storage, and a community with shared goals and a pool of experience from which to draw advice.

Budget Justification: To investigate the models an analyst at GS11 level is needed for two months in year one at an estimated cost of \$12,881. A GS11 level manager and GS9 level technician should be employed full time for the implementation of seed

cooperative from years three through seven at \$748,166. Capital expenditures total \$110,000.

Total Cost for First Five Years of Implementation, more funds needed to continue: \$909,099

COORDINATING PARTNERS: NNSP, MDNPP

EXISTING RESOURCES: NNSP staff, existing seed cooperatives in other regions (e.g. Snake River Seed Cooperative, Institute for Applied Ecology's Native Seed Network)



Action 3.2.3 Establish a Nevada Native Seed Cooperative					
Steps	Year 3	Year 4	Year 5	Year 6	Year 7
Investigate models					
Analyst (GS11 Level or equivalent)					
<i>Duration (month)</i>	2				
<i>Base Salary</i>	55,204				
<i>Salary w/ benefits</i>	77,286	-	-	-	-
Personnel sub-total	12,881	-	-	-	-
Capital Expenditure					
Travel/Material/Operations	644	-	-	-	-
Totals	13,525	-	-	-	-
Implement Seed Cooperative					
Manager (GS11 Level or equivalent)					
<i>Duration (month)</i>	12	12	12	12	12
<i>Base Salary</i> ⁴⁵	55,204	57,044	58,884	60,724	60,724
<i>Salary w/ benefits</i>	77,286	79,862	82,438	85,014	85,014
Technician (GS9 Level or equivalent)					
<i>Duration (month)</i>	12	12	12	12	12
<i>Base Salary</i> ⁴⁶	45,627	47,148	48,669	50,190	50,190
<i>Salary w/ benefits</i>	63,878	66,007	68,137	70,266	70,266
Personnel sub-total	141,163	145,869	150,574	155,280	155,280
Capital Expenditure ⁴⁷	50,000	15,000	15,000	15,000	15,000
Travel/Material/Operations	7,058	7,293	7,529	7,764	7,764
Totals	148,222	153,162	158,103	163,044	163,044
Total personnel cost	154,044	145,869	150,574	155,280	155,280
Total material/travel/operations cost	7,702	7,293	7,529	7,764	7,764
Total capital expenditure	-	-	-	-	-
Total cost of the action	211,747	168,162	173,103	178,044	178,044

⁴⁵Base salary increases by 3.2% every year for the first four years on the average.

⁴⁶Base salary increases by 3.2% every year for the first four years on the average.

⁴⁷Capital Expenditure assumes that the Seed Cooperative would share facilities with the expanded seed warehouse (Action 1.2.2) but would require an additional budget for Seed Cooperative specific capital.

Action 3.2.4 Develop trainings and materials for Federal and State contracting

Develop trainings and materials specific to seed procurement that will outline the steps required to meet Federal and State contracting criteria. The training and materials will encourage new entrants into the seed industry, as well as simplify the process for existing seed producers.

Budget Justification: To develop training materials an analyst at the GS11 level is required to work for six months in year one at a cost of \$38,643.

Total Cost for full implementation: \$40,575

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: US Small Business Administration and Nevada Department of Administration trainings and resources, Federal Contracting Officers, State of Nevada Purchasing Division



Action 3.2.4 Develop trainings and materials for Federal and State contracting	
Steps	Year 2
Develop trainings and materials	
Analyst (GS11 Level or equivalent)	
<i>Duration (month)</i>	6
<i>Base Salary</i>	55,204
<i>Salary w/ benefits</i>	77,286
Capital Expenditure	
Travel/Material/Operations	1,932
Totals	40,575
Total personnel cost	38,643
Total material/travel/operations cost	1,932
Total capital expenditure	-
Total cost of the action	40,575



GOAL 4

Develop and implement strategies for internal and external communications.

Action 4.1.1 Ensure staff support to continue coordination and communication among NNSP organizations

Managing the progress and communications of the NNSP needs on-going support from dedicated staff. NNSP leadership will ensure this level of commitment continues or is increased commensurate with the progress of the NNSP either through the direction of staff time or the commitment of resources to expand capacity.

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: : NNSP leadership

EXISTING RESOURCES: NNSP monthly meetings

Action 4.1.1 Ensure staff support to continue coordination and communication among NNSP organizations

This action is on-going and it does not require any additional cost to implement.

Action 4.1.2 Conduct monthly NNSP meetings

Continue monthly NNSP meetings to facilitate the implementation of the Strategy. Meetings will be organized by a designated facilitator within the NNSP, who will establish a date, time, and location for meetings. Meeting agendas will be developed collaboratively with the intent that each NNSP member has sufficient opportunity to address Strategy progress, ideas, and concerns. Meetings will include discussions of NNSP progress, including successes, challenges, and ideas for improving effectiveness, and also include planning discussions for coordinated research efforts on an annual basis. Additional NNSP partners can be added as needed in response to interest and need.

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP monthly meetings

Action 4.1.2 Conduct monthly NNSP meetings

This action is on-going and it does not require any additional cost to implement.

Action 4.1.3 Communicate to NNSP leadership to report progress

In addition to formal leadership meetings, NNSP members will be responsible for communicating to their leadership on NNSP progress to ensure that their interests are being met. As staff turnover and changes in funding occur for NNSP members, members will confer with their leadership to ensure that these changes do not hinder NNSP progress or persistence and/or to designate new representatives for participation with the NNSP. Changes that may affect the NNSP will be addressed on an annual basis in meetings with NNSP members and their leadership.

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP monthly meetings, NNSP leadership meetings

Action 4.1.3 Communicate to NNSP leadership to report progress

This action is on-going and it does not require any additional cost to implement.



Action 4.2.1 Develop and implement a comprehensive external communications plan

The formation of a more formal, strategic communications plan will accelerate the dissemination and uptake of key information about native seed and plant materials. Once developed, disseminate information by creating communications tools such as videos, press releases, social media platforms, or other supporting communications materials. Communications will focus on connecting stakeholders with information and opportunities, including topics such as: New and useful fact sheets and tools, funding opportunities, relevant publications, and case studies of local successes.

Channels for marketing of these materials may include social media, email listservs, regional publications, meetings, and other forums. Additionally, the NNSP will coordinate outreach to individuals and local groups (e.g. local conservation districts and weed management agencies) who express an interest in native seeds and provide educational presentations and meetings upon request

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP monthly meetings, NNSP annual forum, NNSP leadership meetings, Western Forbs: Biology, Ecology, and Use in Restoration Manual, NRCS Plant Materials Program manuals and guides, GBNPP, MDNPP, Great Basin Joint Fire Science Exchange, existing social media platforms for NNSP agency partners

Action 4.2.1 Develop and implement a comprehensive external communications plan

This action is on-going and it does not require any additional cost to implement.

Action 4.2.2 Organize and implement the annual Nevada Native Seed Forum

Organize the annual Nevada Native Seed Forum to bring producers, technical experts, and land managers together to discuss native seed production in Nevada. This forum will distribute available resources and tools, while increasing awareness and facilitating knowledge transfer among current and potential native seed producers.

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP staff

Action 4.2.2 Organize and implement the annual Nevada Native Seed Forum

This action is on-going and it does not require any additional cost to implement.



Action 4.2.3 Organize native seed-focused field visits and tours (Level 3)

Field tours are particularly effective for communicating successes, challenges, and opportunities to a variety of target audiences. The NNSP will organize field tours for land managers, producers, and other interested parties to production fields, seed storage and cleaning facilities, seeding projects, and seed collection sites, to help build awareness of this collaborative effort and increase the breadth of the partnership.

Budget Justification: Various positions calculated at the average of GS12 level are needed one month in a year for years three through seven at \$41,964. This action can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel dedicated for this job.

Total Cost for First Five Years of Implementation, more funds needed to continue: **\$44,062**

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: Common garden network (some sites established), UNR field plots, NRCS Great Basin Plant Materials Center, NRCS Tucson Plant Materials Center, BLM Ely Regional Seed Warehouse, NDF seedbank, UNR seedbank, seeding projects associated with various NNSP agencies

Action 4.2.3 Organize native seed-focused field visits and tours					
Steps	Year 3	Year 4	Year 5	Year 6	Year 7
Organize field tours					
Various positions calculated at the average of GS12 or equivalent					
<i>Duration (month)</i>	1	1	1	1	1
<i>Base Salary⁴⁸</i>	66,167	68,373	79,579	72,785	72,785
<i>Salary w/ benefits</i>	92,634	95,722	111,411	101,899	101,899
Capital Expenditure					
Travel/Material/Operations	386	399	464	425	425
Totals	8,105	8,376	9,748	8,916	8,916
Total personnel cost	7,719	7,977	9,284	8,492	8,492
Total material/travel/operations cost	386	399	464	425	425
Total capital expenditure					
Total cost of the action	8,105	8,376	9,748	8,916	8,916

⁴⁸Base salary increases by 3.2% every year for the first four years on the average.

Action 4.3.1 Establish a mechanism to report on the progress and achievements of the Strategy

Under this action, NNSP annual leadership meetings would provide a feedback mechanism for NNSP members to report progress and achievements. This could facilitate the production of an annual report to track progress on the Strategy for use and analysis for Action 4.3.2.

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP monthly meetings, NNSP leadership meetings, timelines set in the strategy

Action 4.3.1 Establish a mechanism to report on the progress and achievements of the Strategy

This action is on-going and it does not require any additional cost to implement.



Action 4.3.2 Review and revise the Strategy

The Strategy will be reviewed by the NNSP every 1 to 3 years and by NNSP leadership every 5 years. Review of the Strategy will allow for refinement of goals, objectives, or actions, and development of new goals, objectives, or actions. Strategy editors will be designated within the NNSP.

Budget Justification: This action is an on-going action and it does not require any additional cost to implement.

COORDINATING PARTNERS: NNSP

EXISTING RESOURCES: NNSP

Action 4.3.2 Review and revise the Strategy

This action is on-going and it does not require any additional cost to implement.



Personnel Overlap across



These tables in this section summarize the personnel overlap across actions. These tables can be used to determine which actions that can be done by the same personnel.

Actions are color coded to denote “Can be accomplished either in house with existing personnel by re-allocating their time or by hiring additional personnel dedicated for this job” and “requires a new hire”.

Table 6. Color Coding for Personnel Overlap across the Actions

	In house or hire additional hire - permanent
	Requires new hire - temporary

Table 6. Summarizes the color coding for personnel overlap actions. **Purple** actions involve permanent employees whether they are existing personnel or additional personnel. **Lavender** actions require a temporary new hire.

Table 7a.-7f. Summaries personnel overlap across the actions for Years 1-5 and ongoing personnel requirements after the initial 5-year ramp-up period.

Table 7a

Duration (month) - Year 1												
Job Title (monthly)	1	2	3	4	5	6	7	8	9	10	11	12
Senior biologist/botanist (GS12)	Action 1.1.1			Action 2.2.2								
Senior biologist/botanist (GS12)	Action 2.3.2											
Foundation Seed Program Manager (GS12)	Action 1.2.3											
Business Analyst (GS11)	Action 1.2.1		Action 1.2.3									
NEPA Analyst (GS11)	Action 1.3.3											
Web Developer/Website Manager (GS9)	Action 3.1.2						Action 1.2.3					
Technician (GS9)	Action 2.2.2											
GIS Specialist (GS9)	Action 1.1.1											
Analyst (GS9)	Action 1.3.3											
Post doc (GS9)	Action 2.3.2											

Table 7b

Duration (month) - Year 2												
Job Title (monthly)	1	2	3	4	5	6	7	8	9	10	11	12
Senior biologist/ botanist (GS12)	Action 1.1.1		Action 1.1.3		Action 2.2.3			Action 2.2.4			Action 2.2.5	
Senior biologist/ botanist (GS12)	Action 2.3.2											
Senior biologist/ botanist (GS12)	Action 2.2.2											
Foundation Seed Program Manager (GS12)	Action 1.2.3											
GIS Specialist (GS9)	Action 1.1.3											
Web Developer/ Website Manager (GS9)	Action 1.2.3	Action 3.1.2										
Analyst (GS11)	Action 3.2.4											
Orchard manager (GS9)	Action 1.3.5											
NEPA Analyst (GS11)	Action 1.3.3											
Technician (GS9)	Action 2.2.2			Action 2.2.4								
Post doc (GS9)	Action 2.3.2											
Post doc (GS9)	Action 1.1.3											
Post doc (GS9)	Action 2.2.3											
Post doc (GS9)	Action 2.2.4											
Post doc (GS9)	Action 2.2.5											
Research Tech/Farm manager	Action 2.1.2											
Graduate Student (GS8)	Action 2.2.5											

Organization Acronyms

Name	Acronym
Association of Official Seed Certifying Agencies	AOSCA
Bureau of Land Management (DOI)	BLM
Department of the Interior	DOI
Great Basin Native Plant Project	GBNPP
Great Basin Institute	GBI
Mojave Desert Native Plant Program	MDNPP
Natural Resources Conservation Service	NRCS
Nevada Department of Agriculture	NDA
Nevada Division of Forestry	NDF
Nevada Department of Wildlife	NDOW

Name	Acronym
Nevada Conservation Districts Program	NCDP
Reno-Sparks Indian Colony	RSIC
Rocky Mountain Research Station (USFS)	RMRS
The Nature Conservancy	TNC
University of Nevada, Reno	UNR
U.S. Department of Agriculture	USDA
U.S. Fish and Wildlife Service (DOI)	USFWS
U.S. Forest Service (USDA)	USFS
U.S. Geological Survey	USGS
Walker Basin Conservancy	WBC

Note: The agencies and other participants listed in this document are current as of this printing, but additional participation is encouraged and welcomed.

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