



FS Agreement No. 17-IA-11015600-020

INTERAGENCY/MEMORANDUM OF UNDERSTANDING AGREEMENT
Between The
USDOI, NATIONAL PARK SERVICE,
INTERMOUNTAIN REGION
AND THE
USDOI, U.S. FISH AND WILDLIFE SERVICE,
MOUNTAIN-PRAIRIE REGION
AND THE
USDOI, BUREAU OF LAND MANAGEMENT,
BLM WYOMING STATE OFFICE
BLM MONTANA STATE OFFICE
BLM IDAHO STATE OFFICE
And The
USDA, FOREST SERVICE
NORTHERN, ROCKY MOUNTAIN AND INTERMOUNTAIN REGIONS

This INTERAGENCY/MEMORANDUM OF UNDERSTANDING AGREEMENT is hereby made and entered into by and between The National Park Service, Intermountain Region; U.S. Fish and Wildlife Service, Mountain-Prairie Region; Bureau of Land Management, Idaho, Montana and Wyoming State Offices , hereinafter referred to as “the Cooperators,” and the USDA, Forest Service, Northern, Rocky Mountain and Intermountain Regions hereinafter referred to as the “U.S. Forest Service,” under the authority of: P.L. 113-76 Service First Authority, Section 430 of the Consolidated Appropriations Act of 2014.

This instrument is being issued by the U.S. Forest Service as a narrative Interagency Agreement; and as a Memorandum of Understanding for the National Park Service, Intermountain Region; U.S. Fish and Wildlife Service, Mountain-Prairie Region; Bureau of Land Management, Montana and Wyoming State Offices.

U.S. Forest Service Agreement #17-IA-11015600-022 replacing: #12-IA-11015600-049 expires 3/31/2017
 National Park Service Agreement #
 U.S. Fish and Wildlife Service Agreement #
 BLM Wyoming Agreement # _____ replacing: BLM-MOU-WY930-1201
 BLM Montana Agreement #
 BLM Idaho Agreement #

Non-funding Obligating Agreement: Nothing in this Interagency Agreement/MOU shall commit the parties to obligate or transfer any funds. Specific work projects or activities that involve the transfer of funds, services, or property will require execution of separate agreements or contracts and be contingent upon the availability of appropriated funds. Such activities must be independently authorized by appropriate statutory authority.



Background: The five-needle pines in the Greater Yellowstone Area (GYA), whitebark pine (*Pinus albicaulis*) and limber pine (*Pinus flexilis*) are important components of forested ecosystems providing a wide range of ecosystem services. Whitebark pine (*Pinus albicaulis*) is a keystone species of high elevation ecosystems in the Greater Yellowstone area (GYA). It defines ecosystem structure, function, and process by providing snow capture and retention and carbon storage, increasing biodiversity, and serving as a food source for wildlife. Throughout its range, whitebark pine is currently at significant risk from the combined effects of insects, the introduced disease white pine blister rust, climate change and successional replacement.

In order to protect healthy whitebark pine and restore whitebark pine in areas with extensive overstory mortality, appropriate management actions must be coordinated, consistent, efficient, and science-based. The Greater Yellowstone Coordinating Committee's Whitebark Pine Subcommittee has worked successfully across boundaries to develop its *Whitebark Pine Strategy for the Greater Yellowstone Area* (2011) with its associated *Adaptive Action Plan – Whitebark Pine in the Greater Yellowstone Area* (2015) to promote the persistence of whitebark pine over time and space in the GYA. The parties to this agreement affirm their commitment to work together to protect and restore whitebark pine in the GYA.

Coordinated activities may include, but are not limited to, individual tree or area protection, silvicultural treatments, planting, and monitoring. A seed orchard for planting white pine blister rust resistant trees has been established on the Custer Gallatin National Forest for the Greater Yellowstone Grand Teton (GYGT) whitebark pine seed zone. The GYGT seed zone encompasses portions of three Forest Service Regions (Northern, Intermountain, and Rocky Mountain) and includes the Custer Gallatin, Beaverhead-Deerlodge, Shoshone, Caribou-Targhee, and Bridger-Teton National Forests; Yellowstone and Grand Teton National Parks; the National Elk and Red Rock Lakes National Wildlife Refuge, and lands managed by the Bureau of Land Management in Wyoming, Montana, and Idaho. The seed orchard would provide a consistent cone crop for planting efforts in the GYA.

The National Park Service, through its Greater Yellowstone Inventory and Monitoring Network (GRYN), leads a GYA monitoring program for whitebark pine health with an emphasis on white pine blister rust infection. Begun in 2004, continued monitoring is integral to understand the health of whitebark pine and help assess the effectiveness of management actions. Reports and papers summarizing findings are available on the GRYN website at https://science.nature.nps.gov/im/units/gryn/monitor/whitebark_pine.cfm.

The National Park Service, the U.S. Fish and Wildlife Service, the Bureau of Land Management, and the U.S. Forest Service have previously affirmed their relationship in the GYA as members of the Greater Yellowstone Coordinating Committee (GYCC) through interagency cooperation, and through a history of coordinated working relationships.

Title: Narrative Interagency Agreement/Memorandum of Understanding for Greater Yellowstone Area Whitebark Pine Management

I. PURPOSE:

The purpose of this agreement is to document the cooperation between the parties to inventory, monitor and manage whitebark pine and limber pine in the GYA, with a principal focus on



protecting and restoring whitebark pine; managing the Greater Yellowstone Grand Teton Whitebark Pine Seed Zone Seed Orchard (seed orchard); and continuing Whitebark Pine Health and Whitebark Pine Blister Rust monitoring, in a cooperative and coordinated manner to the extent permissible by law and agency missions. in accordance with the following provisions and the hereby incorporated Operating and Financial Plan, attached as Exhibit A. The Operating and Financial Plan may be amended as needed.

In consideration of the above premises, the parties hereto agree as follows:

II. THE COOPERATORS SHALL:

- A. Perform in accordance with the Financial and Operating Plan, Exhibit A.
- B. Subject to funding and resource availability, contribute resources and support for whitebark pine protection and restoration, including operation and maintenance of the seed orchard and associated genetics test performance sites, and whitebark pine monitoring.
- C. Work cooperatively to promote inventory, monitoring and management of whitebark pine and limber pine in the GYA through sharing of information and resources.

III. THE U.S. FOREST SERVICE SHALL:

- A. Perform in accordance with the Financial and Operating Plan, Exhibit A.
- B. Subject to funding and resource availability, contribute resources and support for whitebark pine protection and restoration, including operation and maintenance of the seed orchard and associated genetics test performance site, and whitebark pine monitoring.
- C. Work cooperatively to promote inventory, monitoring and management of whitebark pine and limber pine in the GYA through sharing of information and resources.

IV. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND BETWEEN THE PARTIES THAT:

- A. The Parties desire to cooperate in the inventory, monitoring and management of whitebark pine and limber pine, with a principal focus on whitebark pine. Specifically, all parties desire to cooperate fully in matters relating to operation of the seed orchard and associated genetics test performance site, allocation of the seed; and continued whitebark health monitoring.

The Parties agree:

1. The seed orchard provides rust resistant whitebark pine seed for the GYA.
2. Annually, to contribute to the seed orchard and test plantation operation and maintenance.
3. Support the establishment of additional test plantation sites, projected in 2018 and 2022.



4. A portion of the seed is available to all units based on planting needs. The GYCC subcommittee has developed a methodology to equitably distribute seed based on seed availability and the needs of the cooperators through the use of individual cooperator and cooperator consolidated seed plans.
5. Excess seed will be made available to other entities.
6. The Custer Gallatin National Forest will update the seed orchard operating plan (originally developed in 2013) periodically; manage day-to-day operations; and provide a part-time orchard manager who coordinates with appropriate Forest Service, Regional-level and/or Research staff.
7. The GRYN continues responsibility for whitebark pine health and whitebark pine blister rust monitoring, with assistance from the Parties.

- B. **PRINCIPAL CONTACTS.** Individuals listed below are authorized to act in their respective areas for matters related to this agreement.

Principal Cooperator(s) Contacts:

David Vela, Superintendent
Grand Teton National Park and John D.
Rockefeller, Jr. Memorial Parkway
P.O. Drawer 170 Moose, WY 83012
Ph: 307-739-3411 Fax: 307-739-3410
Email: david_vela@nps.gov

Dan Wenk, Superintendent
Yellowstone National Park
P.O. Box 168 Yellowstone Park, WY 82190
Ph: 307-344-2002 Fax: 307-344-2005
Email: Dan_Wenk@nps.gov

David Diamond, Executive Coordinator
Greater Yellowstone Coordinating Committee
Federal Building, Room 234
10 E. Babcock Avenue, Bozeman, MT 59715
Ph: 406-587-6733 Fax: 406-587-6785
Email: david_diamond@nps.gov

Kristin Legg, Program Manager
Greater Yellowstone I&M Program
2327 University Way, Suite 2
Bozeman, MT 59715
Ph: 406-994-7734 Fax: 307-344-2005
Email: Kristin_Legg@nps.gov

Bill West, Refuge Manager
Red Rock Lakes NWR
27820 Southside Centennial Road
Lima, Montana 59739
Ph: 406-276-3536 x302 Fax: 406-276-3538
Email: Bill_West@fws.gov

Brian Glaspell, Refuge Manager
National Elk Refuge
P.O. Box 510
Jackson, WY 83002
Ph: 307-733-9212 Fax: 307-733-9729
Email: brian_glaspell@fws.gov

Delissa Minnick, Manager-Cody Field Office
Bureau of Land Management
1002 Blackburn Street
Cody, WY 82414
Ph: 307-578-5915 Fax: 307-578-5939
Email: dminnick@blm.gov

Rick Hotaling, Western MT District Manager
Bureau of Land Management
106 N. Parkmont
Butte, MT 59701
Ph: 406-533-7600 Fax: 406-533-7660
Email: rhotalin@blm.gov



Mary D'Aversa, Idaho Falls District
Bureau of Land Management
1405 Hollipark Drive Idaho Falls, ID 8340
Ph: 208-524-7541 Fax: 208-524-7588
Email: mdaversa@blm.gov

Principal U.S. Forest Service Program Contacts:

Melany Glossa, Forest Supervisor
Beaverhead-Deerlodge N.F.
420 Barrett Street Dillon, MT 59725
Ph: 406-683-3973 Fax: 406-683-3843
Email: mglossa@fs.fed.us

Tricia O'Connor, Forest Supervisor
Bridger-Teton National Forest
340 N. Cache, Box 1888 Jackson, WY 83001
Ph: 307-739-5511 Fax: 307-739-5442
Email: poconnor@fs.fed.us

Mary Erickson, Forest Supervisor
Custer and Gallatin National Forests
P.O. Box 130 Bozeman, MT 59771
Ph: 406-587-6701 Fax: 406-587-6758
Email: mcerickson@fs.fed.us

Craig Trulock, Acting Forest Supervisor
Shoshone National Forest
808 Meadow Lane Cody, WY 82414
Ph: 307-578-5187 Fax: 307-578-5112
Email: ctrulock@fs.fed.us

Garth Smelser, Forest Supervisor
Caribou-Targhee National Forest
1405 Hollipark Drive Idaho Falls, ID 83401
Ph: 208-557-5762 Fax: 208-557-5827
Email: gsmelser@fs.fed.us

Principal U.S. Forest Service Agreement Contacts:

Teresa L. Johnson
Grants Management Specialist
U.S. Forest Service, Northern Region
P.O. Box 7669 Missoula, MT 59807
Ph: 406-329-3264 Fax: 406-329-3682
Email: teresajohnson@fs.fed.us

Janice Richardson
Grants Management Specialist
U.S. Forest Service, Intermountain Region
324 25th Street Ogden, UT 84401
Ph: 801-625-5796 Fax: 801-625-5365
Email: janicerichardson@fs.fed.us

Rebecca Cuthbertson
Grants Management Specialist
U.S. Forest Service, Rocky Mountain Region
740 Simms Street Golden, CO 80401
Ph: 303-275-5068 Fax: 303-275-5396
Email: rcuthbertson@fs.fed.us



- C. NOTICES. Any communications affecting the operations covered by this agreement given by the U.S. Forest Service or the Cooperators are sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:

To the U.S. Forest Service Program Manager, at the address specified in the agreement.

To the Cooperators, at the Cooperators's address shown in the agreement or such other address designated within the agreement.

Notices will be effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

- D. USE OF U.S. FOREST SERVICE INSIGNIA. In order for the Cooperators to use the U.S. Forest Service insignia on any published media, such as a Web page, printed publication, or audiovisual production, permission must be granted from the U.S. Forest Service's Office of Communications. A written request must be submitted and approval granted in writing by the Office of Communications prior to use of the insignia.
- E. INFORMATION SECURITY. By accepting this agreement, the servicing agency agrees to comply with all Federal information technology (IT) laws, regulations and requirements; and shall be responsible for properly protecting all information used, gathered, or developed as a result of work under this agreement.

The servicing agency shall, upon request, provide to the U.S. Forest Service Information Security staff for review and examination documentation which supports the servicing agency's assertion that adequate security controls are in place to protect U.S. Forest Service information and data which it holds. Documentation may include, but is not limited to, certification and accreditation documentation, security testing results, audit and assessment results, and risk documentation.

The servicing agency shall notify the U.S. Forest Service Computer Incident Response Team (CIRT), by e-mail, at CIRT@fs.fed.us, within 1 business day of any security incidents which affected or may affect the confidentiality, integrity, or availability of the U.S. Forest Service information and data which it holds, and include an analysis of the extent of the incident and summary of preliminary corrective actions.

- F. U.S. FOREST SERVICE ACKNOWLEDGED IN PUBLICATION, AUDIOVISUALS AND ELECTRONIC MEDIA. The Cooperators shall acknowledge U.S. Forest Service support in any publications, audiovisuals, and electronic media developed as a result of this agreement.
- G. NONDISCRIMINATION STATEMENT – PRINTED, ELECTRONIC, OR AUDIOVISUAL MATERIAL. The Cooperators shall include the following statement, in full, in any printed, audiovisual material, or electronic media for public distribution developed or printed with any Federal funding.



In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. (Not all prohibited bases apply to all programs.)

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

If the material is too small to permit the full statement to be included, the material must, at minimum, include the following statement, in print size no smaller than the text:

"This institution is an equal opportunity provider."

- H. ALTERNATE DISPUTE RESOLUTION – INTERAGENCY. The parties to this agreement shall settle any disputes that may arise under this agreement by following direction in the Treasury Financial Manual, Volume 1, Bulletin 2011-04, Section VII (“Resolving Intragovernmental Disputes and Major Differences”).
- I. COPYRIGHTING. The Cooperators is/are granted sole and exclusive right to copyright any publications developed as a result of this agreement. This includes the right to publish and vend throughout the world in any language and in all media and forms, in whole or in part, for the full term of copyright and all renewals thereof in accordance with this agreement. However, the Cooperators shall not sell or grant copyrights to a 3rd party designee who intends to sell the document as a profit making venture.

No original text or graphics produced and submitted by the Forest Service shall be copyrighted. The Forest Service reserves a royalty-free, nonexclusive, and irrevocable right to reproduce, publish, or otherwise use, and to authorize others to use the work for federal government purposes. This right must be transferred to any sub-agreements or subcontracts.

This provision includes:

- 1. The copyright in any work developed by the Cooperators under this agreement.
 - 2. Any right of copyright to which the Cooperators purchase(s) ownership with any federal contributions.
- J. MODIFICATIONS. Modifications within the scope of this agreement must be made by mutual consent of the parties, by the issuance of a written modification signed and dated by all properly authorized, signatory officials, prior to any changes being performed. Requests for modification should be made, in writing, at least 30 days prior to implementation of the requested change. The Cooperators is not obligated to fund any changes not properly approved in advance.



- K. COMMENCEMENT/EXPIRATION DATE. This agreement is executed as of the date of the last signature and is effective through **March 31, 2022** at which time it will expire, unless extended by an executed modification, signed and dated by all properly authorized, signatory officials.

- L. AUTHORIZED REPRESENTATIVES. By signature below, each party certifies that the individuals listed in this document as representatives of the individual parties are authorized to act in their respective areas for matters related to this agreement. In witness whereof, the parties hereto have executed this agreement as of the last date written below. Signatures on file.

/s/ Sue Masica 03/24/2017
 SUE MASICA, Regional Director Date
 USDO, National Park Service, Intermountain Region

/s/ Matt Hogan for 03/29/2017
 NOREEN WALSH, Regional Director Date
 USDO, U.S. Fish & Wildlife Service, Mountain-Prairie Region

/s/ Tim Murphy 03/06/2017
 TIM MURPHY, Idaho State Director Date
 USDO, Bureau of Land Management, Idaho State Office

/s/ Rick Hotaling for 03/07/2017
 JON K. RABY, Acting Montana State Director Date
 USDO, Bureau of Land Management, Montana State Office

/s/ Mary Jo Rugwell 03/21/2017
 MARY JO RUGWELL, Wyoming State Director Date
 USDO, Bureau of Land Management, Wyoming State Office

/s/ Leanne M. Marten 03/03/2017
 LEANNE M. MARTEN, Regional Forester Date
 U.S. Forest Service, Northern Region

/s/ Nora B. Rasure 03/08/2017
 NORA B. RASURE, Regional Forester Date
 U.S. Forest Service, Intermountain Region

/s/ Brian Ferebee 03/13/2017
 BRIAN FEREBEE, Regional Forester Date
 U.S. Forest Service, Rocky Mountain Region



The authority and format of this agreement have been reviewed and approved for signature.

Teresa L. Johnson

TERESA L. JOHNSON

U.S. Forest Service Grants Management Specialist

3/2/2017

Date

Burden Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 3 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

Exhibit A

Greater Yellowstone Area Whitebark Pine

Interagency Operating and Financial Plan for FY2018 through FY2022

Background

Whitebark pine (*Pinus albicaulis*) is a keystone species of high elevation ecosystems in the Greater Yellowstone area (GYA). Throughout its range, whitebark pine is currently at significant risk from the combined effects of insects, the introduced disease white pine blister rust, climate change and successional replacement.

The Greater Yellowstone Coordinating Committee (GYCC) approved the *Whitebark Pine Strategy for the Greater Yellowstone Area* in 2011 and its subsequent three-year rolling *Adaptive Action Plan* in 2015. Its purpose is to facilitate a multi-faceted, multi-agency approach to maintain a functioning whitebark pine ecosystem. The agency administrators committed to implement the Strategy, subject to funding and resource availability, leverage funds and resources together, and support our staffs' coordinated implementation of the Whitebark Pine Strategy.

The National Park Service, U.S. Fish and Wildlife Service, Bureau of Land Management and U.S. Forest Service (the parties) affirmed their commitment to cooperatively protect and restore whitebark pine in the GYA through an Interagency Agreement/Memorandum of Understanding.

Coordinated activities may include but is not limited to, individual tree or area protection, silvicultural treatments, planting, and/or monitoring. A seed orchard for planting white pine blister rust resistant trees was established in the fall of 2012 on the Custer Gallatin National Forest for the Greater Yellowstone Grand Teton (GYGT) whitebark pine seed zone. This orchard is managed and maintained by Custer Gallatin National Forest personnel. The GYGT seed zone encompasses portions of the lands managed by the parties to this agreement. The seed orchard would provide a consistent crop for planting efforts in the GYA. The timeframe for a consistent cone crop is dependent upon many variables and can be difficult to determine; current estimates are for a consistent cone crop occurring between 2022 and 2027.

In addition to the seed orchard, three genetic performance test plantations and a clone bank will be included as part of WBP genetic improvement program for the GYGT seed zone hosted on the Custer Gallatin National Forest. The genetic performance test plantations are from white pine blister rust screenings from cycles 1, 4, and 6. The cycle 1 test plantation was established in 2014. The establishment of the cycle 4 test plantation will be completed in 2018, and the establishment of the cycle 6 test plantation is planned to be completed in 2023. The clone bank establishment will be completed in 2018.

The National Park Service, through its Greater Yellowstone Inventory and Monitoring Network (GRYN), leads a GYA-wide (all parties included) monitoring program for whitebark pine health with an emphasis on white pine blister rust infection. Begun in 2004, continued monitoring across the GYA is integral to understand the health of whitebark pine and help assess the effectiveness of management actions. Annual reports starting in 2004, trend reports (2), special reports, and manuscripts are available products from this monitoring.

Purpose

The purpose of this document is to outline the plan of operation, subject to resource availability, of the seed orchard, clone bank, and genetic test performance sites managed by the Custer Gallatin National Forest and to continue whitebark pine monitoring performed through the GRYN. The term of this document covers fiscal years 2018 - 2022. Actual funding available will be determined each year. Funds may either be transferred through interagency agreements (between USDI and USDA) or through the use of overrides and shorthand codes (when funds are moved within USDI or USDA agencies). The parties may identify further areas of coordination in this time period.

By signing this plan, each GYA manager demonstrates his or her support of the Narrative Interagency Agreement/Memorandum of Understanding for Greater Yellowstone Area Whitebark Pine Management (U.S. Forest Service Agreement #17-IA-11015600-020).

Plan of Operations

The parties agree to the following plan to support the seed orchard, clone bank, genetic test performance sites, and continued whitebark pine monitoring, subject to funding and resource availability.

Seed Orchard

1. The seed orchard provides rust resistant whitebark pine seed for the GYA. A portion of the seed is available to all units based on planting needs. The GYCC whitebark pine subcommittee developed a methodology to equitably distribute seed based on seed availability and the needs of the parties through the use of individual party and party consolidated seed procurement plans. Excess seed will be made available to other entities (i.e. such as but not limited to research, restoration activities on other agencies, etc.).
2. The parties shall annually review the costs to manage the seed orchard, clone bank, and genetic test performance sites and revise the proposed budget accordingly (Table 1). When seed is available, the parties will annually determine allocation of the seed.
3. The Custer Gallatin National Forest prepared a seed orchard operating plan in 2013 and will update this plan periodically. The Custer Gallatin National Forest agrees to continue to manage day-to-day operations and provide an orchard manager who coordinates with appropriate Forest Service Regional-level and/or Research staff. Maintenance and operation activity workloads continue to increase as the planted trees grow and additional test plantations are installed and managed.
4. The Custer Gallatin, Beaverhead-Deerlodge, Shoshone, Bridger-Teton and Caribou-Targhee National Forests all agree to fund installation, operation and maintenance of the seed orchard, clone bank and genetic test performance sites. Each of the five Forests will request the needed funds through the Forest Service Genetic Improvement Program or equivalent, and either transfer funds or make them available to the Custer Gallatin National Forest. Annual costs could vary, and the Forests will divide the annual costs evenly among the five Forests. Each Forest makes the following estimated commitments, which are subject to funding availability each year:

Year	Total Amount	Beaverhead-Deerlodge NF	Custer Gallatin NF	Bridger-Teton NF	Caribou-Targhee NF	Shoshone NF
2018	\$92,900	\$18,580	\$18,580	\$18,580	\$18,580	\$18,580
2019	\$61,300	\$12,260	\$12,260	\$12,260	\$12,260	\$12,260
2020	\$76,550	\$15,310	\$15,310	\$15,310	\$15,310	\$15,310
2021	\$52,850	\$10,570	\$10,570	\$10,570	\$10,570	\$10,570
2022	\$87,300	\$17,460	\$17,460	\$17,460	\$17,460	\$17,460

Costs Break Down By Activity and Year

Year	2018	2019	2020	2021	2022
SO ¹ - Foliar Analysis	\$200				
SO ¹ - Pond Retaining Wall	\$5,000				
SO ¹ - Planting of Grafts	\$6,900	\$7,100	\$900	\$900	\$900
SO ¹ - Specialized Fertilizer	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500
SO ¹ - Purchase and Install Tags	\$1,100	\$1,100	\$1,100	\$1,200	\$1,200
C4 ³ - Plant and Map	\$24,900				
C4 ³ - Quick Checks	\$300	\$300	\$300	\$300	\$300
C4 ³ - Measurements	\$6,300		\$6,600		\$6,900
C4 ³ - Purchase and Install Tags		\$6,600			
C1 ² - Quick Checks	\$300	\$300	\$300	\$300	\$300
C1 ² - Measurements	\$2,900		\$4,100		
CB ⁵ - Foliar Analysis					\$200
CB ⁵ - Irrigation	\$300	\$300	\$300		
CB ⁵ - Planting of Grafts	\$1,600	\$1,600	\$1,700	\$1,700	\$1,700
CB ⁵ - Purchase and Install Tags	\$300	\$300	\$300		
C6 ⁴ - NEPA		\$5,500			
C6 ⁴ - Collect Local Check Lot	\$5,300				
C6 ⁴ - Site Prep			\$22,000		
C6 ⁴ - Survey/Layout Test				\$8,800	
C6 ⁴ - Plant and Map Test					\$28,000
C6 ⁴ - Quick Check					\$300
C6 ⁴ - Measurements					\$7,100
Salary for Manager and GS-5 ⁵	\$35,000	\$35,700	\$36,450	\$37,150	\$37,900
Totals	\$92,900	\$61,300	\$76,550	\$52,850	\$87,300
Forest Share	\$18,580	\$12,260	\$15,310	\$10,570	\$17,460

1 = Seed Orchard, 2 = Cycle 1 Test Plantation, 3 = Cycle 4 Test Plantation, 4 = Cycle 6 Test Plantation, 5 = Clone Bank

5= Salary for 9 pay periods for orchard manager and 8 pay periods for GS-5 Seasonal

Monitoring Whitebark Pine Health Program

1. The GYRN is responsible for leading the whitebark pine health and white pine blister rust monitoring program with assistance from all parties in this MOU.

2. The parties will annually review the monitoring program, and in 2020 the GRYN shall lead a review of the monitoring program.
3. The National Park Service provides over half of the funds needed to implement the monitoring program. The GRYN and GYCC Whitebark Pine Subcommittee shall seek funding to augment the NPS funding of this monitoring program (see table 2).
4. The GYCC agrees that the GYCC project funds (USFS, NPS, USFWS, and BLM) may be used if needed for continued whitebark pine health monitoring which focuses on white pine blister rust up to \$15,000 per year between 2018 and 2022, subject to annual appropriations.
5. The parties agree to continue or to expand monitoring of whitebark pine and limber pine to BLM and USFWS lands, subject to additional funding contributed by the BLM and USFWS as needed.

GRYN Interagency Whitebark Pine Monitoring			
Estimated Budget Needs (Years 2017-2022) for the fourth visit to all panels			
Year	Description	Amount	Notes
2018	Visit Panel 3 - Lead Field Ecologist/supervisor (crew leader); 2 crew; per diem; vehicle; supplies	\$ 60,000	Products: 2nd trend report, annual report from 2016, completion of 2017 fieldwork and data processing. White pine blister rust analysis and publication. Response to USFWS T&E listing request. Participation on WBP Subcommittee and research efforts in ecosystem. Costs shared with NPS, USFS. BLM covers costs of monitoring on BLM Lands.
2019	Visit Panel 4 - Lead Field Ecologist/supervisor (crew leader); 2 crew; per diem; vehicle; supplies	\$ 60,000	Products: 2017 annual report, completion of 2018 fieldwork and data processing. Exploration of data analysis across multiple whitebark pine monitoring programs. Participation on WBP Subcommittee and research efforts in ecosystem. BLM covers costs to monitoring on BLM Lands. Need to seek out shared funding with USFS.
2020	Initiate 4th time the panels will be revisited. Conduct trend analysis, Visit Panel 1 - Lead Field Ecologist/supervisor (crew leader); 2 crew; per diem; vehicle; supplies	\$ 75,000	Products: 2018 annual report, completion of 2019 fieldwork and data processing. Exploration of data analysis across multiple whitebark pine monitoring programs. Participation on WBP Subcommittee and research efforts in ecosystem. BLM covers costs to monitoring on BLM Lands. Need to seek out shared funding with USFS.
2021	Visit Panel 2 - Lead Field ecologist/supervisor (crew leader); 2 crew; per diem; vehicle; supplies	\$ 60,000	Products: Trend Analysis Report/Publication, 2019 annual report, completion of 2020 fieldwork and data processing. Exploration of data analysis across multiple whitebark pine monitoring programs. Participation on WBP Subcommittee and research efforts in ecosystem. BLM covers costs to monitoring on BLM Lands. Need to seek out shared funding with USFS.

GRYN Interagency Whitebark Pine Monitoring			
Estimated Budget Needs (Years 2017-2022) for the fourth visit to all panels			
Year	Description	Amount	Notes
2022	Visit Panel 3 - Lead Field ecologist/supervisor (crew leader); 2 crew; per diem; vehicle; supplies	\$ 60,000	Products: 2019 annual report, completion of 2021 fieldwork and data processing. Exploration of data analysis across multiple whitebark pine monitoring programs. Participation on WBP Subcommittee and research efforts in ecosystem. BLM covers costs to monitoring on BLM Lands. Need to seek out shared funding with USFS.
<p>The network will continue to reassess the costs of implementing the monitoring and making adjustments to the budget as needed to complete the work efficiently, safely, and implement cost savings as needed.</p>			