CEPF Final Completion and Impact Report

Organization's Legal Name:	University of Central Asia
Project Title:	Conservation and Research of Wild Fruit Species in Western Tian Shan, Kyrgyz Republic
Grant Number:	CEPF-110679
Hotspot:	Mountains of Central Asia
Strategic Direction:	1 Address threats to priority species
Grant Amount:	$110,910.90
Project Dates:	January 01, 2021 - May 31, 2023
Date of Report:	July 31, 2023

IMPLEMENTATION PARTNERS

The main implementation partner and subgrantee is Mountain Societies Development Support Program (MSDSP) which took the socio-economic and development components of the project. MSDSP dealt with organization of common interest groups (CIGs), delivery of trainings to them, needs assessment and delivery of equipment, building market linkages and selection of responsible people and construction of tree nurseries for rare tree species.

We also worked closely with the scientific staff of Padysha-Ata nature reserve, Sary-Chelek biosphere reserve, Dashman nature reserve and Kara-Alma forestry unit for organization of field trips, field logistics and data collection. They were of immense help to the project, without it the implementation would not be feasible.

The organized CIGs "Kelechek", "Elina", "Kireshe", "Jayik", "Iygilik" and "Bereke" are greatly appreciated for their interest and devotion to the project aims. These organizations were created by the project, the participants were trained in eco-friendly livelihoods, measures against tree pests and diseases and processing of agricultural products per buyer specifications. They have also received equipment for cutting and drying fruits.

Mr. Isakov Abdyjapar, Mr. Chukotaev Omurbai, Mr. Mavlyanov Shumkarbek, Ms. Botobaeva Tajigul, Mr. Mazenov Amangeldi were chosen as tree nursery owners and are greatly appreciated for the great job they did on creation of the tree nurseries and growing of seedlings of rare and threatened tree species.

CONSERVATION IMPACTS

Planned Long-Term Impacts: 3+ years (as stated in the approved proposal)

Impact Description	Impact Summary
Threats to 3 species of wild fruit are reduced (Malus niedzwetzkyana, M. sieversii and Pyrus korschinsky)	In total, the five nurseries planted 2,795 seedlings; from them 45 – Malus niedzwetzkyana, 100 – Prunus cerasifera and 2,650 - Malus sieversii. Overall, the project was aiming for 1,800 pieces to be replanted, however, nursery owners were able to plant an additional 995 seedlings. We have identified only 1 area of Pyrus korschinsky wild population in Arslanbob area (Dashman nature reserve) during our field research in the last year of the project and it was already too late to collect seeds and plant in the nursery. However, the wild fruit seedlings will be replanted to the forest according to the recommendations in our research report to increase the wild population of these species and improve the population connectivity for better pollination and exchange of genetic material.

Planned Short-Term Impacts: 1 to 3 years (as stated in the approved proposal)

Impact Description	Impact Summary
84,400 hectares of key biodiversity area in Sary-Chelek, Padysha-Ata, and Kara-Alma are under improved management due to project interventions	The research report and the articles provide a solid scientific base for decision making in these protected areas. The scientific staff has got their hands on experience in using modern technology, such are UAVs in ecological research, which also builds the capacity of these PAs and leads to management improvement. Furthermore, the trainings on pests and diseases and alternative livelihoods, provided to the local communities decrease the spread of diseases in the wild tree populations and decrease human pressure on forest resources in these protected areas, which are also potential outcomes of improved management.
Total indirect beneficiaries will be the 1368 households living in the communities of Kara-Alma, Kashka-Suu, and Arkit, which make their living from the collection of wild forest fruit and nut products, who learn from the actions of the CIT members and who benefit from sustainable practices and replanting.	The participants of the common interest groups (CIGs) have increased their income by gaining useful skills and knowledge on preparation of forest nontimber products and gaining the processing equipment. They have also increased their understanding of forest ecology and ecological livelihoods. The participants of the CIGs serve and a vivid example of feasible livelihoods improvement, they share their knowledge and inspire local residents collecting nontimber forest products on how they can also improve their livelihoods. The wild apples from the tree nurseries will be replanted to the forest to increase the wild population of these species. This will increase the yield of wild fruits, which will contribute to the overall income of local population and well as genetical variability of the trees.

Impact Description	Impact Summary
Total direct beneficiaries will be the 140 households that participate directly with the CIG and that sell their products via the private sector (e.g., Nomad, Sun Planet)	Following the introductory meetings in Quarterly 1, 2021 six CIGs were established within the project and their names are "Kelechek", "Elina", "Kireshe", "Jayik", "Iygilik" and "Bereke". They comprise of 138 (M: 73, F: 65) members. A needs assessment was conducted, and the technical specifications of the equipment were identified. Initially, it was planned to purchase three apple cutters and three apple dryers (one set per location). However, based on the findings from the needs assessment, it was decided to procure six apple cutters and six apple dryers (one set per CIG) instead. All six CIGs received one apple dryer and one apple cutter. Agreements between MSDSP KG and CIGs signed and attached as supplementary materials.
Six rural cooperatives (CIGs) are functioning as entities that promote sustainable harvest of natural products and that allow for the financial benefit of their members	One of the goals of the project was to increase the income of CIG members by 25%. In 2022, on average, one CIG member earned an additional USD 562 from forest product sales, with sales revenue ranging from $60 to $2,400. We have conducted interviews to reveal the situation. In general, the majority of respondents (59%) noted that the project activities contributed to an increase in the annual income of their households by an average of 15%, which is below the target value by 10%. The reasons for not achieving the goal may be that some of the respondents did not have access to the equipment, and CIGs have not yet been able to start exporting its products or sign contracts with export companies. But it should also be noted that the largest increase in income was noted among the respondents who are engaged in the production of fruit marshmallow, at 23%.
The communities of Kara-Alma, Kashka-Suu, and Arkit show good awareness about the ecology of wild fruit species, as measured by post-training questionnaires	Trainings on the important topic of eco-friendly livelihoods were conducted within the framework of the project; 37% of all CIG members participated in this training. In order to assess the impact of the training on participants' knowledge, pre- and post-tests were conducted for all participants. The tests were delivered in the Kyrgyz language. Before the start of the training, the correct answer rate was 29.5%. At the end of the training, an average of 82.4% of questions were answered correctly by participants. The average rate of increased knowledge of CIG members was 52.9%. We have also conducted interview at the end of the project to see the impact of this training. Of respondents, 98% noted that they are aware of the problem of reforestation, also 67% noted that members of their CIG apply the following forest protection measures: explanatory work among the population about this problem, fruit collection without damaging tree

Impact Description	Impact Summary
	branches and in compliance with fire safety, garbage collection, preventing livestock grazing in seedling planting areas, as well as preserving fruit seeds and planting them in nurseries or reserves.

Unexpected impacts (positive or negative)?
We could save some money on the field visits and included one more site to the research. This is the forest around Arslanbob village including Dashman nature reserve. This is one of the biggest walnut forest and its vicinity posses the next largest wild apple tree population as well as other rare species. This has substantially increased the survey area and contributed greatly to the dataset collected.

PROJECT RESULTS/DELIVERABLES

Overall results of the project:
The main results of the project include:
Publication of 3 peer-reviewed papers in scientific journals,
Publication of 1 research report outlining the research conducted in the project and recommendations to decision-makers for better management of the forests,
Four study sites covered with ecological forest research, these include Padysha-Ata nature reserve, Sary-Chelek biosphere reserve, Dashman nature reserve, and Kara-Alma forestry unit,
The ecological information collected from 133 forest plots together with UAV multispectral imagery,
Three study sites covered with socio-economic survey, these include Padysha-Ata nature reserve, Sary-Chelek biosphere reserve, and Kara-Alma forestry unit,
In total 220 farmers households interviewed for their livelihoods strategies,
MSRI acquired 2 multispectral drones, which will be used in future research of rare and threatened species,
Six CIGs (common interest groups) created in Kara-Alma, Arkit and Padysha-Ata, their titles are: "Kelechek", "Elina", "Kireshe", "Jayik", "Iygilik" and "Bereke". They comprise of 138 (M: 73, F: 65) members,
The six CIGs have received trainings in eco-friendly livelihoods, measures against tree pests and diseases and processing of agricultural products per buyer specifications,
Five tree nurseries for rare and threatened tree species created (each 0.03 ha), they grow 45 – Malus niedzwetzkyana, 100 – Prunus cerasifera and 2,650 - Malus sieversii seedlings, which will be replanted to the forest.

Results for each deliverable:

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
1.0	Research and public awareness component will deal with research of the target species and understanding of social issues of the species conservation. It will also deal with the public awareness issues as within local communities, so in academia.	1.1	Research paper on modelling of threatened species distribution and their habitat shift due to climate change	At the time of report a paper titled "Spatio-temporal patterns of different forest type response to climatic factors" was developed and submitted for publication to Central Asian Journal of Sustainability and Climate Research. CEPF was properly acknowledged. The locations of all the drone flight plots are uploaded as a supplementary file "CEPF_drone_plots_extents.KMZ".
1.0	Research and public awareness component will deal with research of the target species and understanding of social issues of the species conservation. It will also deal with the public awareness issues as within local communities, so in academia.	1.2	Research paper on use of non-timber forest products	As Zhyldyz Shigaeva, who was planned to do this research left MSRI, we replaces her with Erkin Isaev, who has produced and published the paper titled "Bias correction of Sentinel-2 with unmanned aerial vehicle multispectral data for use in monitoring walnut fruit forest in western Tien Shan, Kyrgyzstan" in "Journal of Applied Remote Sensing" DOI: 10.1117/1.JRS.17.022204 CEPF was properly acknowledged.
1.0	Research and public awareness component will deal with research of the target species and understanding of social issues of the species conservation. It will also	1.3	Research paper on silvopastoralism and its impact on target species	A paper titled "Classification of Mountain Silvopastoral Farming Systems in Walnut Forests of Kyrgyzstan: Determining Opportunities for Sustainable Livelihoods" was published in "Agriculture 2022, Vol. 12, Page 2004" DOI: 10.3390/AGRICULTURE12122004 CEPF was properly acknowledged.

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	deal with the public awareness issues as within local communities, so in academia.			
1.0	Research and public awareness component will deal with research of the target species and understanding of social issues of the species conservation. It will also deal with the public awareness issues as within local communities, so in academia.	1.4	Research report on forest utilization with recommendations on situation improvement for stakeholders (200 color-printed copies)	A research report was developed by all the researchers, who was working in the project. The research report was printed in the amount of 200 copies and will be distributed to stakeholders. The electronic version of the report will be published on UCA web-site in the "Publications" section. CEPF was properly acknowledged in the report. Apart from this, we have collected field data, which will be analyzed later and new publications developed, each time we produce a paper based on the data, collected within the CEPF project, we will acknowledge CEPF. The electronic version of the report is uploaded separately as a file named "Walnut-fruit forests.pdf".
1.0	Research and public awareness component will deal with research of the target species and understanding of social issues of the species conservation. It will also deal with the public awareness issues as within local communities, so in academia.	1.5	Report on the public Project Presentation Meeting, including meeting agenda, list of participants (with name, organization, and sex)	MSDSP KG staff held information meetings in the target locations of the project on 15th and 16th March 2021 together with the staff from MSRI UCA. The main purpose of the visit was to inform the beneficiaries and all stakeholders about the project's goal and key objectives, expected results, target geographies, etc. Participation of the introductory meetings was quite high varying from 20 to 30 people per meeting. Given the fact that the local communities are already

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				involved in wild apple production and are willing to protect the natural reserves that they live close by, the residents of the target villages expressed their great interest in participating actively in the project activities.
1.0	Research and public awareness component will deal with research of the target species and understanding of social issues of the species conservation. It will also deal with the public awareness issues as within local communities, so in academia.	1.6	500 leaflets on measures against tree pests and diseases, 200 leaflets on the aims of the project and 300 posters on the value of wild fruit species	500 leaflets on measures against tree pests and diseases, 200 leaflets on the aims of the project and 300 posters on the value of wild fruit species were developed and printed by MSRI in spring 2021. They were constantly distributed to local project participants and park staff throughout the course of the project. A few copies left in the office for later reference.
1.0	Research and public awareness component will deal with research of the target species and understanding of social issues of the species conservation. It will also deal with the public awareness issues as within local communities, so in academia.	1.7	Report on post-training awareness assessment	The report on MSDSP trainings and pre- and post-training awareness assessment was compiled from MSDSP quarterly reports, which were previously uploaded. The current report also includes the impact assessment and is uploaded separately as a Word document named "1.7 Report on post-training awareness assessment.docx". This report also includes information on the trainings conducted, namely the trainings on measures against tree pests and diseases, trainings on eco-friendly livelihoods and the trainings on processing of agricultural products as all these information bits are interconnected.

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2.0	The socio-economic component will deal with capacity building and social aspects of conservation, as well as the involvement of local communities in the actual conservation activities.	2.1	Report on the creation of six CIGs, including locations of each, basic scope of their work, and participant names and relevant demographic details (sex, occupation, etc.)	Following the introductory meetings in Quarterly 1, 2021 six CIGs were established within the project and their names are "Kelechek", "Elina", "Kireshe", "Jayik", "Iygilik" and "Bereke". They comprise of 138 (M: 73, F: 65) members. The report on the creation of six CIGs was compiled from quarterly MSDSP reports and uploaded as "2.1 Report on the creation of six CIGs.docx" Word file.
2.0	The socio-economic component will deal with capacity building and social aspects of conservation, as well as the involvement of local communities in the actual conservation activities.	2.4	Report on nursery development, including locations, numbers of trees grown and distributed, dates of exchange visits conducted, and lists of participants (name, sex)	All nursery owners have been selected. However, the initial target of three owners was increased to five with each tree nursery area of 0.03 ha, which gives a total area of 0.15 ha. In total, the five nurseries planted 2,795 seedlings; from them 45 – Malus niedzwetzkyana, 100 – Cherry-plums and 2,650 Malus sieversii. Overall, the project was aiming for 1,800 pieces to be replanted, however, nursery owners were able to plant an additional 995 seedlings. The report on nursery development was compiled from MSDSP quarterly reports and uploaded to the supplementary materials as a Word file titled "2.4 Report on nursery development.docx". The locations of all nurseries are also uploaded as "Locations of the tree nurseries.KML".
2.0	The socio-economic component will deal with capacity building and social aspects of	2.3	Brief report on conducted on 3 trainings on measures against tree pests and diseases, including training	As a result of the training "on measures against tree pests and diseases", the members of six CIGs could learn about best practices of preventing and treating the tree

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	conservation, as well as the involvement of local communities in the actual conservation activities.		program and list of participants (with sex and relevant demographic details)	diseases and fighting against the pests. Through practical field-based consultation, the trainer also demonstrated some of these methods/best practices in the orchard of CIG members. A total of 96 members (57% F) from the six CIGs attended the theoretical part of the training. In contrast, 83 attended the practical sessions (41% F). The report on MSDSP trainings on measures against pests and diseases was compiled from MSDSP quarterly reports, which were previously uploaded. The current report also includes the impact assessment and is uploaded separately as a Word document named "1.7 Report on post-training awareness assessment.docx". This report also includes information on the trainings conducted, trainings on eco-friendly livelihoods and the trainings on processing of agricultural products as well as post-training assessment, as all these information bits are interconnected.
2.0	The socio-economic component will deal with capacity building and social aspects of conservation, as well as the involvement of local communities in the actual conservation activities.	2.5	Brief report on 3 trainings on eco-friendly livelihoods, including agenda, training materials, and list of participants (with sex and relevant demographic details)	In June 2022, MSDSP KG conducted the training on the eco-friendly livelihoods for 109 members (F-61, M-48, Youth-33) of the six CIGs. The report on MSDSP trainings on eco-friendly livelihoods was compiled from MSDSP quarterly reports, which were previously uploaded. The current report also includes the impact assessment and is uploaded separately as a Word document named "1.7 Report on post-training awareness assessment.docx".

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				This report also includes information on the trainings conducted, trainings on measures against pests and diseases and the trainings on processing of agricultural products as well as post-training assessment, as all these information bits are interconnected.
2.0	The socio-economic component will deal with capacity building and social aspects of conservation, as well as the involvement of local communities in the actual conservation activities.	2.6	Brief report on 3 trainings on processing of agricultural products per buyer specifications, including agenda, training materials, and list of participants (with sex and relevant demographic details)	A total of 85 members (M-30, F-55 (65%)) from the six CIGs attended the training. The report on MSDSP trainings on processing of agricultural products was compiled from MSDSP quarterly reports, which were previously uploaded. The current report also includes the impact assessment and is uploaded separately as a Word document named "1.7 Report on post-training awareness assessment.docx". This report also includes information on the trainings conducted, trainings on eco-friendly livelihoods and the trainings on measures against pests and diseases as well as post-training assessment, as all these information bits are interconnected.
2.0	The socio-economic component will deal with capacity building and social aspects of conservation, as well as the involvement of local communities in the actual conservation activities.	2.2	Report on community agri-business support, including: (1) needs assessment, (2) technical specifications of equipment required, (3) names and demographic details of those to receive equipment, and (4)	A needs assessment was conducted, and the technical specifications of the equipment were identified. Initially, it was planned to purchase three apple cutters and three apple dryers (one set per location). However, based on the findings from the needs assessment, it was decided to procure six apple cutters and six apple dryers (one set per CIG) instead. All six CIGs received one apple dryer and one apple

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			agreements with each recipient of equipment	cutter. Agreements between MSDSP KG and CIGs are attached at the end of the report. Report on community agri-business support compiled from MSDSP quarterly reports and uploaded to supplementary materials as Word file named "2.2 Report on community and agri-business support.docx".
2.0	The socio-economic component will deal with capacity building and social aspects of conservation, as well as the involvement of local communities in the actual conservation activities.	2.7	Agreements confirming the establishment of market linkages between potential buyers and CIGs	Each member sold the prepared wild apples in the local markets. However, there were several meetings and discussions between CIG leaders and potential buyers of wild apples (Nomad Store, Eco Zolotoy Sad, and Alysh Dan Organic Coop) and verbal agreements were made to follow up on in the 2023 season. However, they pre-agreed on required quantity and quality of these products, schedule of supply and payment conditions.
3.0	Stakeholder engagement and MSRI and MSDSP capacity	3.1	Report on Process Framework	Quarterly reports were submitted by MSDSP each quarter and uploaded to the system in due time. All the reports are also uploaded as supplementary materials in one zip-file named "MSDSP_QuarterlyReports.zip".
3.0	Stakeholder engagement and MSRI and MSDSP capacity	3.2	Civil society tracking tool MSRI	Civil society tracking tool MSRI were completed at the beginning and at the end of the project and submitted in due time.
3.0	Stakeholder engagement and MSRI and MSDSP capacity	3.3	Gender tracking tool MSRI	Gender tracking tool MSRI were completed at the beginning and at the end of the project and submitted in due time.
4.0	Sub-grant management	4.1	Signed sub-grant agreement between UCA and MSDSP reflecting all CEPF's	The agreement itself and its attachment are uploaded as "MoU-UCA-MSDSP KG - both signed.pdf" and "Attachement 1 Project

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			contractually required clauses and provisions	Proposal.pdf" in supplementary materials respectively.
4.0	Sub-grant management	4.2	Final technical and financial report on MSDSP activities	All the financial activities of MSDSP were uploaded as part of the financial reports. The final technical report of MSDSP is uploaded as a supplementary file titled "4.2 Final Report MSDSP KG 2022.docx".
1.0	Research and public awareness component will deal with research of the target species and understanding of social issues of the species conservation. It will also deal with the public awareness issues as within local communities, so in academia.	1.8	Baseline and final Management Effectiveness Tracking Tool (METT) for Padysha-Ata State Nature Reserve	Baseline Management Effectiveness Tracking Tool (METT) for Padysha-Ata State Nature Reserve was completed at the beginning of the project and submitted in due time. The final METT assessment was omitted as no changes occurred in the park during the project.
1.0	Research and public awareness component will deal with research of the target species and understanding of social issues of the species conservation. It will also deal with the public awareness issues as within local communities, so in academia.	1.9	Baseline and final Management Effectiveness Tracking Tool (METT) for Sary-Chelek Biosphere Reserve	Baseline Management Effectiveness Tracking Tool (METT) for Sary-Chelek Biosphere Reserve was completed at the beginning of the project and submitted in due time. The final METT assessment was omitted as no changes occurred in the park during the project.

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3.0	Stakeholder engagement and MSRI and MSDSP capacity	3.4	Civil society tracking tool MSDSP	Civil society tracking tool MSDSP were completed at the beginning and at the end of the project and submitted in due time.
3.0	Stakeholder engagement and MSRI and MSDSP capacity	3.5	Gender tracking tool MSDSP	Gender tracking tool MSDSP were completed at the beginning and at the end of the project and submitted in due time.

Tools, products or methodologies that resulted from the project or contributed to the results:
There are not particular tools, products or methodologies, that resulted from this project. However, this project was a great experience and have helped UCA to work out the technical workflow of UAV data collection planning, the actual data collection, preparation and analysis.

PORTFOLIO INDICATORS

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
1	15 Key Biodiversity Areas (KBAs), covering 600,000 hectares, have improved management	84,400	84,400 hectares of key biodiversity area in Sary-Chelek, Padysha-Ata, and Kara-Alma are under improved management due to project interventions	84,400	In general the change is in increased capacity of the scientific staff of the protected areas with regards to data collection using UAVs, their hands on experience with this new technology as well as data analysis skills, which were demonstrated and transferred during joint field trips. This will help the staff to better do their research. The published scientific papers and the research report serve as a scientific

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					basis for better management and decision making. The report also includes recommendations for farmers to use the natural resources more sustainably. These are all fundamental investments in the management improvement, which will show in a longer term, however it is difficult to demonstrate this with METT in such a short period.
3	2 initiatives launched with private sector stakeholders resulting in adoption or maintenance of biodiversity-friendly practices	2	Nomad, Sun Planet	3	There were several meetings and discussions between CIG leaders and 3 potential buyers of wild apples (Nomad Store, Eco Zolotoy Sad, and Alysh Dan Organic Coop) and verbal agreements were made to follow up on in the 2023 season.
4	10 land-use plans or land-use management practices incorporate provisions for biodiversity conservation	6	Six rural cooperatives (CIGs) are functioning as entities that promote sustainable harvest of natural products and that allow for the financial benefit of their members	6	As planned six rural cooperatives (CIGs) are functioning as entities that promote sustainable harvest of natural products and that allow for the financial benefit of their members.
5	5 partnerships and networks formed or	6	Six rural cooperatives (CIGs) are	6	As planned six rural cooperatives (CIGs) are

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	strengthened among civil society, and with government and communities, to leverage complementary capacities and maximize impact in support of the ecosystem profile		functioning as entities that promote sustainable harvest of natural products and that allow for the financial benefit of their members		functioning as entities that promote sustainable harvest of natural products and that allow for the financial benefit of their members.
6	At least 20 local organizations receiving CEPF grants demonstrate improved organizational capacity	2	UCA, MSDSP	2	UCA and MSDSP have improved the organizational capacity by gaining more experience in grant management and reporting. CSTT and GTT were a good exercise and have helped to reflect on the organizational structure and processes and better understand the strength and weakness of the organizations.
1.1	Number of species to which threats are reduced	3	Threats to 3 species of wild fruit are reduced (Malus niedzwetzkyana, M. sieversii and Pyrus korschinsky)	2	Threats to the populations of Malus sieversii and M. niedzwetzkyana are reduced by growing their seedlings in tree nurseries with later replanting them to the forest to support the wild populations of these species. Unfortunately, a population of Pyrus korschinsky was identified late in 2022 closer to the end of the project, so no

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					seeds were collected and planted to the tree nurseries. However, the wild population of Pyrus korschinsky is covered with monitoring activities.
1.2	Number of species benefiting from strengthened regulation on extractive use	3	Threats to 3 species of wild fruit are reduced (Malus niedzwetzkyana, M. sieversii and Pyrus korschinsky)	3	The policies and recommendations published in the research report and scientific papers related to forest management and agriculture will contribute to improved conservation of the species and better decision making. The trainings provided to local communities will also improve their understanding of the importance of these species as well as knowledge on environmentally sustainable livelihoods. However, there was no direct strengthening of the regulation because it already forbids destruction of these species in the wild population. The main problem here to be solved is law enforcement and work with local communities to decrease their direct pressure on the species in the sustainable way. And

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					this is exactly what this project was aiming for.
2.1	Number of hectares of KBA with improved management	84,400	84,400 hectares of key biodiversity area in Sary-Chelek, Padysha-Ata, and Kara-Alma are under improved management due to project interventions	84,400	In general the change is in increased capacity of the scientific staff of the protected areas with regards to data collection using UAVs, their hands on experience with this new technology as well as data analysis skills, which were demonstrated and transferred during joint field trips. This will help the staff to better do their research. The published scientific papers and the research report serve as a scientific basis for better management and decision making. The report also includes recommendations for farmers to use the natural resources more sustainably. These are all fundamental investments in the management improvement, which will show in a longer term, however it is difficult to demonstrate this with METT in such a short period.
5.3	Number of new networks or partnerships for	2	Partnerships with Nomad, Sun Planet	3	There were several meetings and discussions between CIG leaders and 3

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	conservation that are created and/or strengthened				potential buyers of wild apples (Nomad Store, Eco Zolotoy Sad, and Alysh Dan Organic Coop) and verbal agreements were made to follow up on in the 2023 season.
6.1	Number of local organizations that actively participate in conservation actions guided by the ecosystem profile	2	UCA, MSDSP	2	UCA and MSDSP continue joint efforts in research and development in the area of walnut fruit forests, guided by a long-term strategy.
6.2	Number of local civil society organizations receiving grants that demonstrate improved organizational capacity	2	UCA, MCDSP	2	UCA and MSDSP continue joint efforts in conservation activities by joint applications to external funding to invest in the long-term strategy on forest research and conservation.
6.3	Number of local civil society organizations receiving grants that demonstrate improved understanding of and commitment to gender issues	2	UCA, MSDSP	2	UCA and MSDSP has always been committed to gender equality, which is reflected in our regularly updated policies.
2	60,000 hectares of protected areas are created or expanded				
7	Number of women receiving direct				

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	socio-economic benefits through increased income, food security, resource rights, or other measures of human wellbeing from CEPF grants is no less than 40% the number of men				
1.3	Number of informal species-specific reserves created				
2.3	Number of KBAs without official protection status with improved management				
3.1	Number of corridors with improved functioning of forest ecosystems due to ecological restoration techniques				
3.2	Number of local level land use plans that incorporate biodiversity conservation as a management objective				
3.3	Number of major development projects, sub-				

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	national plans, or national plans that incorporate biodiversity conservation as a management objective				
4.1	Number of private companies that adopt biodiversity-friendly practices				
4.2	Number of hectares of farming or grazing areas that incorporate biodiversity conservation into operations				
4.3	Number of hectares of forest that fall under certification schemes, eco-labeling programs, or other market-based management methods				
4.4	Number of KBAs or landscapes with site safeguard requirements that are incorporated into development projects				
4.5	Number of conservation issues				

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
	of concern to civil society that are the subject of public debate				
5.1	Number of local organizations that demonstrate increased knowledge of international and regional conservation agreements and take steps to engage in action at the local level				
5.2	Number of regional thematic experience sharing events that allow for informal and formal networking in the hotspot				
5.4	Number of funding opportunities for civil society that are disseminated to relevant organizations and resulting in successful funding proposals for continuation or extension of CEPF-funded work				

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
5.5	Number of KBAs where programs are delivered to primary/secondary learners				
5.6	Number of advanced degree students that receive structured training in applied biodiversity science and/or support for research that leads directly to Intermediate Outcomes 1, 2, or 3				
6.2	Number of local civil society organizations receiving grants that demonstrate improved organizational capacity				
6.3	Number of local civil society organizations receiving grants that demonstrate improved understanding of and commitment to gender issues				
2.2	Number of KBAs with official protection status with improved management	84,400	84,400 hectares of key biodiversity area in Sary-Chelek, Padysha-Ata, and Kara-Alma are under	84,400	In general the change is in increased capacity of the scientific staff of the protected areas with regards to data collection

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
			improved management due to project interventions		using UAVs, their hands on experience with this new technology as well as data analysis skills, which were demonstrated and transferred during joint field trips. This will help the staff to better do their research. The published scientific papers and the research report serve as a scientific basis for better management and decision making. The report also includes recommendations for farmers to use the natural resources more sustainably. These are all fundamental investments in the management improvement, which will show in a longer term, however it is difficult to demonstrate this with METT in such a short period.

GLOBAL INDICATORS

Protected Areas

Protected areas that have been created and/or expanded as a result of the project. Protected areas may include private or community reserves, municipal or provincial parks, or other designations where biodiversity conservation is an official management goal.

Name of Protected Area	WDPA ID*	Latitude	Longitude	Country	Original Total Size (Hectares) **	New Protected Hectares ***	Year of Legal Declaration or Expansion

*World Database of Protected Areas

**If this is a new protected area, 0 should appear in this column

*** This column excludes the original total size of the protected area.

Key Biodiversity Area Management

Key Biodiversity Areas (KBAs) under improved management—where tangible results have been achieved to support conservation—as a result of the project.

KBA Name	KBA Code	Size of KBA	Number of Hectares with Improved Management
Sary-Chalek	KGZ06		23,850
Aflatun-Padyshata	KGZ05		30,590
Bazar-Korgon	KGZ18		30,117

Production Landscapes

Production landscapes with strengthened management of biodiversity as a result of the project.

A production landscape is defined as a site outside a protected area where commercial agriculture, forestry or natural product exploitation occurs.

Name of Production Landscape	Latitude	Longitude	Hectares Strengthened	Intervention
Mr. Isakov Abdyjapar tree nursery	41.229183	73.337125	1	A tree nursery for rare and threatened tree species created. The total area of the nursery is 0.03 ha, it grows 1,700 seedlings of Malus sieversii, which will be replanted into the forest after they reach 3 years old. The exact locations of the nurseries and their extents are provided in the supplementary materials, the file "Locations of the tree nurseries.kml".
Mr. Chukotaev Omurbai tree nursery	41.802602	71.95831	1	A tree nursery for rare and threatened tree species created. The total area of the nursery is 0.03 ha. They grow 465 seedlings of which 45 – Malus

Name of Production Landscape	Latitude	Longitude	Hectares Strengthened	Intervention
				niedzwetzkyana and 420 – Malus sieversii. They will be replanted into the forest when they reach 3 years old. The exact locations of the nurseries and their extents are provided in the supplementary materials, the file "Locations of the tree nurseries.kml".
Mr. Mavlyanov Shumkarbek tree nursery	41.576227	71.678328	1	A tree nursery for rare and threatened tree species created. The total area of the nursery is 0.03 ha. They grow 250 seedlings in total, of which 100 – Prunus cerasifera and 150 – Malus sieversii. The seedlings will be replanted into the forest, when they reach 3 years old. The exact locations of the nurseries and their extents are provided in the supplementary materials, the file "Locations of the tree nurseries.kml".
Ms. Botobaeva Tajigul tree nursery	41.66551	71.648887	1	A tree nursery for rare and threatened tree species created. The total area of the nursery is 0.03 ha. They grow 80 seedlings of Malus sieversii. They will be replanted into the wild, when they reach 3 years old. The exact locations of the nurseries and their extents are provided in the supplementary

Name of Production Landscape	Latitude	Longitude	Hectares Strengthened	Intervention
				materials, the file "Locations of the tree nurseries.kml".
Mr. Mazenov Amangeldi tree nursery	41.786763	71.96277	1	A tree nursery for rare and threatened tree species created. The total area of the nursery is 0.03 ha. They grow 300 seedlings of Malus sieversii. They will be replanted into the forest when they reach 3 years old. The exact locations of the nurseries and their extents are provided in the supplementary materials, the file "Locations of the tree nurseries.kml".

Benefits to Individuals

- **Structured Training:**

Number of Men Trained	Number of Women Trained	Topics of Training
85	97	Measures against tree pests and diseases. Eco-friendly livelihoods. Processing of agricultural products per buyer specifications. Exchange visit to Arslanbob to increase the knowledge and skills of nursery owners to grow forest trees from seeds.

- **Cash Benefits:**

Number of Men – Cash Benefits	Number of Women – Cash Benefits	Description of Benefits
35	46	The benefits are direct increase of income of the households of CIGs representatives. This is the direct result of the project as per the interviews conducted with the members of the CIGs. So, the numbers actually represent not only the men and women but also their households, represented by CIG

Number of Men – Cash Benefits	Number of Women – Cash Benefits	Description of Benefits
		members - men and women. The report on the interviews is provided in the attached materials in the file "2.2 Report on community and agri-business support.docx".

Benefits to Communities

View the **characteristics** column below with the following corresponding codes:	View the **benefits** column below with the following corresponding codes:
1- Small Landowners	a. Increased Access to Clean Water
2- Subsistence Economy	b. Increased Food Security
3- Indigenous/ Ethnic Peoples	c. Increased Access to Energy
4- Pastoralists / Nomadic Peoples	d. Increased Access to Public Services
5- Recent Migrants	e. Increased Resilience to Climate Change
6- Urban Communities	f. Improved Land Tenure
7- Other	g. Improved Use of Traditional Knowledge
	h. Improved Decision-Making
	i. Improved Access to Ecosystem Services

Community Name	**Community Characteristics**							**Type of Benefit**									**Country**	**Number of Males Benefitting**	**Number of Females Benefitting**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**a**	**b**	**c**	**d**	**e**	**f**	**g**	**h**	**i**			
Arkyt village community	☒	☐	☐	☒	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒	Kyrgyzstan	19	17
Jaiyk village community	☒	☐	☐	☒	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒	Kyrgyzstan	8	20
Kashka-Suu village community	☒	☐	☐	☒	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒	Kyrgyzstan	23	3
Kara-Alma village community	☒	☐	☐	☒	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒	Kyrgyzstan	23	25

Characteristics of "Other" Communities:

Policies, Laws and Regulations

View the **topics** column below with the following corresponding codes:

A- Agriculture	E- Energy	I- Planning/Zoning	M- Tourism
B- Climate	F- Fisheries	J- Pollution	N- Transportation
C- Ecosystem Management	G- Forestry	K- Protected Areas	O- Wildlife Trade
D- Education	H- Mining and Quarrying	L- Species Protection	P- Other

No.	Name of Law	Scope	Topics													
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P

"Other" Topics Addressed by the Policy, Law or Regulation:

No.	Country/ Countries	Date Enacted/ Amended	Expected impact	Action Performed to Achieve the Enactment/ Amendment

Companies Adopting Biodiversity-friendly Practices

A company is defined as a for-profit business entity. A biodiversity-friendly practice is one that conserves or uses natural resources in a sustainable manner.

Name of Company	Description of Biodiversity-Friendly Practice	Country/Countries where Practice was Adopted
Kelechek	CIG in Kara-Alma created within this project, the local participants get trainings and equipment from the project in order to develop biodiversity-friendly livelihoods and decrease their pressure on natural resources. The group consists of local residents, who collect wild apples and then sell them to processing facilities, which limits natural regeneration of the species. After receiving trainings and	Kyrgyzstan

Name of Company	Description of Biodiversity-Friendly Practice	Country/Countries where Practice was Adopted
	equipment the participants process fruits locally and support wild populations of trees.	
Elina	CIG in Kara-Alma created within this project, the local participants get trainings and equipment from the project in order to develop biodiversity-friendly livelihoods and decrease their pressure on natural resources. The group consists of local residents, who collect wild apples and then sell them to processing facilities, which limits natural regeneration of the species. After receiving trainings and equipment the participants process fruits locally and support wild populations of trees.	Kyrgyzstan
Kashka-Suu	CIG in Kashka-Suu created within this project, the local participants get trainings and equipment from the project in order to develop biodiversity-friendly livelihoods and decrease their pressure on natural resources. The group consists of local residents, who collect wild apples and then sell them to processing facilities, which limits natural regeneration of the species. After receiving trainings and equipment the participants process fruits locally and support wild populations of trees.	Kyrgyzstan
Jaiyk	CIG in Jaiyk village created within this project, the local participants get trainings and equipment from the project in order to develop biodiversity-friendly livelihoods and decrease their pressure on natural resources. The group consists of local residents, who collect wild apples and then sell them to processing facilities, which limits natural regeneration of the species. After receiving trainings and equipment the participants process fruits locally and support wild populations of trees.	Kyrgyzstan
Iigilik	CIG in Arkyt village created within this project, the local participants get trainings and equipment from the project in order to develop biodiversity-friendly livelihoods and decrease their pressure on natural resources. The group consists of local residents, who collect wild apples and then sell them to processing facilities, which limits	Kyrgyzstan

Name of Company	Description of Biodiversity-Friendly Practice	Country/Countries where Practice was Adopted
	natural regeneration of the species. After receiving trainings and equipment the participants process fruits locally and support wild populations of trees.	
Bereke	CIG in Arkyt village created within this project, the local participants get trainings and equipment from the project in order to develop biodiversity-friendly livelihoods and decrease their pressure on natural resources. The group consists of local residents, who collect wild apples and then sell them to processing facilities, which limits natural regeneration of the species. After receiving trainings and equipment the participants process fruits locally and support wild populations of trees.	Kyrgyzstan

Networks and Partnerships

Networks/partnerships should have some lasting benefit beyond immediate project implementation. Informal networks/partnerships are acceptable.

Name of Network/Partnership	Year Established	Country/ Countries	Established by Project?	Purpose
The six CIGs connection with Nomad Store company	2022	Kyrgyzstan	Yes	The purpose of the partnership is to increase biodiversity-friendly livelihoods of local communities. The six CIGs will supply their nontimber forest products to Nomad Store company for selling.
The six SIGs connection with Eco Zolotoi Sad company	2022	Kyrgyzstan	Yes	The purpose of the partnership is to increase biodiversity-friendly livelihoods of local communities. The six CIGs will supply their nontimber forest products to Eco Zolotoi Sad company for selling.

Name of Network/Partnership	Year Established	Country/ Countries	Established by Project?	Purpose
The six CIGs connection with Alysh Dan Organic Coop company	2022	Kyrgyzstan	Yes	The purpose of the partnership is to increase biodiversity-friendly livelihoods of local communities. The six CIGs will supply their nontimber forest products to Alysh Dan Organic Coop company for selling.
MSRI and MSDSP partnership	2021	Kyrgyzstan	Yes	MSRI and MSDSP created partnership to implement this project. This was a good experience so MSRI and MSDSP continue to partner in other projects as well as undertake joint fundraising actions to continue the work on species conservation.

Sustainable Financing

Sustainable financing mechanisms generate funding for the long-term (generally five or more years). These include, but are not limited to, conservation trust funds, debt-for-nature swaps, payment for ecosystem services (PES) schemes, and other revenue, fee or tax schemes that generate long-term funding for conservation.

Name of Mechanism	Purpose	Date Established	Description	Country/ Countries	Project Intervention	Delivery of Funds?

Globally Threatened Species

Globally threatened species (CR, EN, VU) on the IUCN Red List of Threatened Species, benefitting from the project.

Genus	Species	Common Name (English)	Status	Intervention	Population Trend at Site
Malus	niedzwetzkyana		EN	Wild population increase by growing seedlings in tree nurseries and wild population monitoring.	Decreasing

Genus	Species	Common Name (English)	Status	Intervention	Population Trend at Site
Malus	sieversii		VU	Wild population increase by growing seedlings in tree nurseries and wild population monitoring.	Stable
Pyrus	korshinskyi		CR	Wild population monitoring.	Decreasing
Crataegus	knorringiana		CR	Wild population monitoring.	Decreasing

LESSONS LEARNED

Construction of a tree nursery and growing seedlings takes more time then expected. There are many problems connected to it like irrigation, protection, motivation of local communities etc. It is also difficult to find the seeds of the rare and threatened species at the beginning of the project. It takes at least one year before the actual construction to find the places where the species grow and collect the seeds, then it takes at least 2 - 3 years to grow the seedlings for them to get ready to be replanted into the wild. We would have conducted the field research first with an emphasis on identification of the rare species and collection of their seeds and construct the nurseries once we have enough seeds of all the species we want to grow.

Local population is somewhat inert and it takes an additional awareness campaign to involve them into the project and make them interested to participate in the project activities.

We should have budgeted fees for peer-reviewed publications, so that they could be published in open access journals.

Combining the roles of a project manager and a researcher is very challenging. This requires double as much work and additional time must be accounted for.

SUSTAINABILITY/REPLICATION

Slow seed growth of wild apples and no preparation and adaptation to extreme weather conditions (long winter period, torrential rains, and mudflows). It was suggested to local communities to apply organic fertilizers, follow the necessary agro-technology trained by the project and protect the existing seeds and seedlings.

Poor interest of farmers (CIG members) in food processing due to lack of awareness. The project team has observed that the low level of interest of CIG members is mainly driven by the fact that they have never been exposed to the idea that the fruits they traditionally harvest can also be processed. Therefore, they are not aware of the possible financial benefit of this practice. MSDSP KG anticipates that the upcoming theoretical and practical training on food processing will help to address this challenge as the post-training and project surveys revealed that CIG members now understand the value of working as a group.

Cattle trampled a ditch that provided water for the Kara-Alma nursery; the nursery is located in the forest. To ensure that the cattle would not trample the ditch for irrigation, it was decided to purchase a 200-meter hosepipe (d-50 mm) to make a separate irrigation channel. This measure will provide water to the nursery without any obstacle.

Absence of a supplier to purchase equipment (apple driers and cutters). This delay impacted the CIGs' ability to process this season's harvest. The Project Coordinator had to work with the Purchase and Logistics Department to update the technical specification of the equipment and re-announce the tender.

The socio-economic survey team has faced unwillingness of the respondents to participate in the interviews. The interviewees were suspicious and had fears that the information

would be used for additional taxation or law enforcement. The interview team had to extensively explain the purpose of the interviews and the research.

The COVID lockdown and restrictions to move around the country in the beginning of the project had certain constraints on conducting the field visits. This could be solved only with time, when the restrictions were taken down. This has lead to fewer visits to the field at the beginning of the project and led to savings on the travel expenses. The saved money were the reason for inclusion of an additional study area at the end of the project and some budget revisions, which helped to purchase additional equipment for MSRI, which led to improved research capacity.

Application of UAVs to the forest research and monitoring is certainly a success. It simplifies data collection and at the same time helps to collect the multispectral data from the field. However, application of UAVs in mountains requires a certain level of experience because of changing elevation of the terrain, where one has to take that into account to avoid drone collision with the trees.

Using of local field assistants and park staff and field guides was a very good decision. This helped to easily navigate in the field and conduct local logistics. It also helped to build good relations with local population.

ENVIRONMENTAL AND SOCIAL SAFEGUARDS/STANDARDS

Our project did not trigger any safeguards.

ADDITIONAL COMMENTS/RECOMMENDATIONS

The work on research and conservation of the rare and threatened tree species is a long-term endeavor as forest has comparatively slow dynamics. This work need to be continued in the future and the methods and approaches used in this project has proven to be successful, which means this work can be scaled and replicated elsewhere. MSRI and MSDSP will continue working together to secure additional funding and carry on the activities on research and conservation of the vulnerable forest ecosystems and tree species. As well as working with local communities on improvement their livelihoods and decreasing their pressure on natural resources.

ADDITIONAL FUNDING

Total Amount of Additional Funding Actually Secured (USD)	
Breakdown of Additional Funding	

INFORMATION SHARING AND CEPF POLICY

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. For more information about this project, you may contact the organization and/or individual listed below.

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