

Statement of Work
Herbarium Voucher Collection
Land Management Section, Environmental Security Department
Marine Corps Installations West – Marine Corps Base Camp Pendleton, California

1. PURPOSE

The purpose of this agreement is to continue to collect herbarium specimens in order to prepare a scientifically reputable floristic spreadsheet checklist using San Diego Plant Atlas methodologies in 28 grid squares aboard United States Marine Corps (USMC) Base Camp Pendleton (Base). Due to scientific advances, plant names and family relationships are continually changing which makes it necessary to update the checklist. A high quality plant checklist is an essential reference in Base natural resources work. Creating the checklist will require documenting as many native and naturalized plants on Base as possible by focusing efforts at peak flowering times.

This project contributes to the objectives of the CESU network by providing usable knowledge to support informed decision making; creating and maintaining effective partnerships among the federal agencies and universities to share resources and expertise; encouraging professional development of current and future federal scientists, resource managers, and environmental leaders; and managing federal resources effectively. In addition, this work is consistent with the Californian CESU mission of providing research, technical assistance, and education to federal land management, environmental, and research agencies.

2. PERIOD OF PERFORMANCE

The period of performance shall be for a base year (fiscal year [FY] 2015) and four one-year options (fiscal years 2016-2019). The period of performance for this task order shall start on the date of award and end on 30 September 2016. The total duration of this agreement, including any option years, shall not exceed five (5) years.

3. OPTIONS

This agreement shall be for a base year (FY 2015) and eight options (FYs 2016-2019). Additional field days may be funded for FYs 2016 through 2019 if Option for year is awarded and funds are available. A “field day” represents all the costs associated with the field work and deliverables.

Period of Performance:

Base Year: The period of performance for this task order shall start on the date of award in 2015 and end on 30 September 2016 (no more than 18 months).

Option 1: The period of performance for this task order shall start on the date of award in 2016 and end on 30 September 2017 (no more than 18 months).

Option 1A: The period of performance for this task order shall start on the date of award in 2016 and end on 30 September 2017 (no more than 18 months).

Option 2: The period of performance for this task order shall start on the date of award in 2017 and end on 30 September 2018 (no more than 18 months).

Option 2A: The period of performance for this task order shall start on the date of award in 2017 and end on 30 September 2018 (no more than 18 months).

Option 3: The period of performance for this task order shall start on the date of award in 2018 and end on 30 September 2019 (no more than 18 months).

Option 3A: The period of performance for this task order shall start on the date of award in 2018 and end on 30 September 2019 (no more than 18 months).

Option 4: The period of performance for this task order shall start on the date of award in 2019 and end on 31 August 2020 (no more than 12 months).

Option 4A: The period of performance for this task order shall start on the date of award in 2019 and end on 31 August 2020 (no more than 12 months).

Project end date can be earlier than Period of Performance if all Tasks are completed and approved by NTR and Base Representatives.

4. LOCATION

Marine Corps Base Camp Pendleton is located in the northwestern portion of San Diego County, California, immediately north of the city of Oceanside. This project may also include work aboard Naval Weapons Station Seal Beach Detachment Fallbrook (NWS Fallbrook) if the options (1A, 2A, 3A, 4A) for additional field days are executed. All work conducted aboard NWS Fallbrook will be conducted according to this agreement.

5. SERVICES REQUIRED

Substantial involvement is expected between the USMC and nonfederal cooperator when carrying out the activities specified in the scope of work and may include activities such as the USMC's involvement in the development of study methodology, data gathering and analysis; review of work plans, reports and all deliverables; providing staff time to oversee and participate in the project.

Base Year:

Government

The government will facilitate base access, coordinate range access, assist with field collection and plant identification, and review data and reports.

Cooperator:

Task 1: Herbarium Collecting

The Cooperator will collect herbarium specimens for the purpose of preparing a scientifically reputable floristic spreadsheet checklist for the Base. Plants will be collected in accordance to the San Diego Natural History Museum Plant Atlas Grid Square system method. All surveys aboard NWS Fallbrook, if any, will follow the same methodology as the Base surveys and the results will be located in a separate report and checklist.

All new plants identified on Base will be recorded in the checklist and vouchered. There will be a minimum of ten (10) field days for the base year of the agreement.

All rare plant populations that are not in the Base rare plant dataset will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The number of plants in each phenology stage (vegetative, flower bud, flowering, fruiting, and senescent), plant community, associated plants, aspect, disturbances, latitude, and longitude will be recorded.

Any new invasive species (and invasive species infestations) which are located on Base will be counted and mapped using a Global Positioning System (GPS) unit with a minimum of 3-meter accuracy. The number of individuals, latitude, and longitude will be provided to the BTR in the form of a spreadsheet for the field survey reports and will be in a Geographical Information System (GIS) dataset as part of the agreement deliverables.

All milkweed species used by the monarch butterfly will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The plant community will also be recorded.

During all field surveys, GPS units will be set to collect streaming line data to show what areas of the Base where surveyed, on what date, and by how many people. The collection of streaming line data will be disabled, or the GPS unit will be turned off, when not surveying. There should be no line features depicting where the vehicles were driven. The survey routes from all survey events shall be provided to the Land Management Section as a GIS feature class.

During the Plant Atlas project, the botanists associated with the project will be accompanied by Base resource management personnel. The purpose of this field shadowing experience is to provide Base personnel with excellent, hands-on botanical training to include: plant identification, survey methods, how to collect herbarium-quality voucher specimens, and how to record botanical field data. Such training is critical for Base Land Management personnel to gain perspective on invasive plant distributions, special plant species, and botanical habitat characteristics, which has applications to a wide variety of natural resource programs on base.

Task 2: Kick-Off Meeting

The Cooperator shall attend a kick-off meeting with the Land Management Section prior to conducting the field work. The purpose of the kick-off meeting is to discuss the purpose of the project, timelines, data management formats, explain Base access and security requirements/restrictions, clarify schedules, answer any questions the Cooperator may have regarding the project, and discuss other pertinent information which could have a bearing on the work to be performed. The Cooperator will prepare the kick-off meeting notes and include them in the first field survey report.

Task 3: Field Survey Reports

Within 10 calendar days after each field visit, the Cooperator will send an e-mail to the Base Technical Representative (BTR) and the Navy Technical Representative (NTR) with the following information:

- New Additions to the Base Checklist

- New Vouchers for Existing Species in the Base Checklist
- Rediscoveries of Plants Previously Documented on the Base
- New San Diego County records
- Rare Plant Species Observations
- Invasive Species Observations
- Any Other Notable Observations
- Spreadsheet of invasive species locations, which will have the following columns:
 - scien_name: Scientific name
 - pop_date: YYYYMMDD format
 - pop_count: Number of plants
 - surveyor: Name of surveyor
 - elevation: The elevation in meters.
 - coord_x: Longitude in decimal degrees (e.g., - 117.37094)
 - coord_y: Latitude in decimal degrees (e.g., 33.22736)
- Spreadsheet of rare plant locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
 - scien_name: Scientific name
 - pop_date: YYYYMMDD format
 - pop_count: Number of plants. The sum of the phenology stages should equal the pop_count.
 - vegetative: The number of individuals in the vegetative stage.
 - flower_bud: The number of individuals with flower buds.
 - flowering: The number of individuals flowering.
 - fruiting: The number of individuals fruiting and setting seed.
 - senescent: The number of individuals that have finished flowering, fruiting, and setting seed.
 - hab_typ_d: Habitat type domain value
 - plant_comm: The plant community following the most recent Vegetation Communities of San Diego County by Oberbauer.
 - assoc_plants: Separate scientific names with a comma and then a space
 - aspect: For example, NW (Steep)
 - elevation: The elevation in meters.
 - coord_x: Longitude in decimal degrees (e.g., - 117.37094)
 - coord_y: Latitude in decimal degrees (e.g., 33.22736)
- Spreadsheet of milkweed locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
 - scien_name: Scientific name
 - pop_date: YYYYMMDD format
 - pop_count: Number of plants
 - plant_comm:
 - surveyor: Name of surveyor
 - elevation: The elevation in meters.
 - coord_x: Longitude in decimal degrees (e.g., - 117.37094)
 - coord_y: Latitude in decimal degrees (e.g., 33.22736)

Task 4: Yearly Summary Report

A report is due for each year of this agreement. A separate report will be provided for any work conducted aboard NWS Fallbrook. A draft report (electronic [.doc and searchable .pdf]) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure

that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft report and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final report (electronic [.doc and searchable .pdf]), along with the responses to the comments. The BTR will review the pre-final report and provide comments to the Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final report (electronic [.doc and searchable .pdf]), along with the responses to the comments.

Nomenclature for this project will follow the most current edition of the Jepson Manual, the Jepson Online Interchange for California Floristics, the most current Checklist of the Vascular Plants of San Diego County, Hortus Third, and published volumes of the Flora of North America (Flora of North America Editorial Committee [<http://www.efloras.org>]). Additionally, original peer-reviewed research journal articles deemed to be appropriate for classification may be utilized as seen appropriate by the Curator of Botany.

The Cooperator will summarize the methods and results, and provide a discussion of the collection campaigns. The report will have the following sections:

1. Introduction

2. Abstract

3. Data Collection

- New Additions to Camp Pendleton Plant Checklist:
 - New San Diego Records Collected during this Project: A table will be provided that includes scientific name, family, origin, life form, and description.
 - New Additions to Camp Pendleton Plant Checklist: A table will be provided that includes scientific name, family, origin, life form, and description.
- Rediscoveries of Plants Previously Documented on the Base:
 - This section will include a table of the rediscovered species that have not been collected on the Base since 1945.
 - Another table will be provided that includes all the remaining plants that have not been observed since 1945.
- Rare Plant Observations
 - This section will include a table of the rare plants observed during the project. The table will include the scientific name, family, plant community, associated plants, aspect, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- Invasive Plant Observations
 - This section will include a table of the invasive plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- Milkweed Observations
 - This section will include a table of the milkweed plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- Interesting Observations

- Bryophyte Collections to Date
 - This information will be provided in a table.
- 4. Progress Towards Project Completion
- 5. Summary of Herbarium Voucher Collection Project
- 6. Acknowledgements
- 7. References

Task 5: Base Plant Voucher Checklist

The Base plant voucher checklist is due for each year of this agreement. A separate checklist will be provided for any work conducted aboard NWS Fallbrook. The checklist for NWS Fallbrook does not need to include the following columns: Voucher from SDSU, Is this Plant Counted, JM2 Common Name, Listed Rebman 2006, Listed Jepson 1996, and Jepson 1996 Pg.

The Cooperator will update the Base plant voucher checklist with the new plant vouchers according to Table 1. A qualified botanist or biologist is required to complete this task. The checklist will be updated with any revisions to plant taxonomy and any recent synonyms will be entered into the checklist. The Cooperator will review and update federal, state, and CNPS (California Native Plant Species) status on the existing voucher checklist.

A draft checklist (electronic) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft checklist and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final checklist (electronic), along with the responses to the comments. The BTR will review the pre-final checklist and provide comments to the Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final checklist (electronic), along with the responses to the comments.

Option 1:

Government

The government will facilitate base access, coordinate range access, assist with field collection and plant identification, and review data and reports.

Cooperator

Task 1: Herbarium Collecting

The Cooperator will collect herbarium specimens for the purpose of preparing a scientifically reputable floristic spreadsheet checklist for the Base. Plants will be collected in accordance to the San Diego Natural History Museum Plant Atlas Grid Square system method. All surveys aboard NWS Fallbrook, if any, will follow the same methodology as the Base surveys and the results will be located in a separate report and checklist.

All new plants identified on Base will be recorded in the checklist and vouchered. There will be a minimum of eleven (11) field days for Option 1.

All rare plant populations that are not in the Base rare plant dataset will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The number of plants in each phenology stage

(vegetative, flower bud, flowering, fruiting, and senescent), plant community, associated plants, aspect, disturbances, latitude, and longitude will be recorded.

Any new invasive species (and invasive species infestations) which are located on Base will be counted and mapped using a Global Positioning System (GPS) unit with a minimum of 3-meter accuracy. The number of individuals, latitude, and longitude will be provided to the BTR in the form of a spreadsheet for the field survey reports and will be in a Geographical Information System (GIS) dataset as part of the agreement deliverables.

All milkweed species used by the monarch butterfly will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The plant community will also be recorded.

During all field surveys, GPS units will be set to collect streaming line data to show what areas of the Base were surveyed, on what date, and by how many people. The collection of streaming line data will be disabled, or the GPS unit will be turned off, when not surveying. There should be no line features depicting where the vehicles were driven. The survey routes from all survey events shall be provided to the Land Management Section as a GIS feature class.

During the Plant Atlas project, the botanists associated with the project will be accompanied by Base resource management personnel. The purpose of this field shadowing experience is to provide Base personnel with excellent, hands-on botanical training to include: plant identification, survey methods, how to collect herbarium-quality voucher specimens, and how to record botanical field data. Such training is critical for Base Land Management personnel to gain perspective on invasive plant distributions, special plant species, and botanical habitat characteristics, which has applications to a wide variety of natural resource programs on base.

Task 2: Kick-Off Meeting

The Cooperator shall attend a kick-off meeting with the Land Management Section prior to conducting the field work. The purpose of the kick-off meeting is to discuss the purpose of the project, timelines, data management formats, explain Base access and security requirements/restrictions, clarify schedules, answer any questions the Cooperator may have regarding the project, and discuss other pertinent information which could have a bearing on the work to be performed. The Cooperator will prepare the kick-off meeting notes and include them in the first field survey report.

Task 3: Field Survey Reports

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Task 4: Yearly Summary Report

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The Cooperator will summarize the methods and results, and provide a discussion of the collection campaigns. The report will have the following sections:

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- This section will include a table of the rediscovered species that have not been collected on the Base since 1945.
- Another table will be provided that includes all the remaining plants that have not been observed since 1945.

- **Rare Plant Observations**

- This section will include a table of the rare plants observed during the project. The table will include the scientific name, family, plant community, associated plants, aspect, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

- **Invasive Plant Observations**

- This section will include a table of the invasive plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

- **Milkweed Observations**

- This section will include a table of the milkweed plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

- **Interesting Observations**

- **Bryophyte Collections to Date**

- This information will be provided in a table.

4. Progress Towards Project Completion

5. Summary of Herbarium Voucher Collection Project

6. Acknowledgements

7. References

Task 5: Base Plant Voucher Checklist

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Option 1A:

Government

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Cooperator

Task 1: Herbarium Collecting

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All new plants identified on Base will be recorded in the checklist and vouchered. There will be a minimum of five (5) field days for Option 1A.

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Task 4: Yearly Summary Report

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- **Invasive Plant Observations**
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- **Milkweed Observations**
 - This section will include a table of the milkweed plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Interesting Observations**
- **Bryophyte Collections to Date**
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4. Progress Towards Project Completion

5. Summary of Herbarium Voucher Collection Project

6. Acknowledgements

7. References

Task 5: Base Plant Voucher Checklist

The Base plant voucher checklist is due for each year of this agreement. A separate checklist will be provided for any work conducted aboard NWS Fallbrook. The checklist for NWS Fallbrook does not need to include the following columns: Voucher from SDSU, Is this Plant Counted, JM2 Common Name, Listed Rebman 2006, Listed Jepson 1996, and Jepson 1996 Pg.

The Cooperator will update the Base plant voucher checklist with the new plant vouchers according to Table 1. A qualified botanist or biologist is required to complete this task. The checklist will be updated with any revisions to plant taxonomy and any recent synonyms will be entered into the checklist. The Cooperator will review and update federal, state, and CNPS (California Native Plant Species) status on the existing voucher checklist.

A draft checklist (electronic) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft checklist and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final checklist (electronic), along with the responses to the comments. The BTR will review the pre-final checklist and provide comments to the

Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final checklist (electronic), along with the responses to the comments.

Option 2:

Government

The government will facilitate base access, coordinate range access, assist with field collection and plant identification, and review data and reports.

Cooperator

Task 1: Herbarium Collecting

The Cooperator will collect herbarium specimens for the purpose of preparing a scientifically reputable floristic spreadsheet checklist for the Base. Plants will be collected in accordance to the San Diego Natural History Museum Plant Atlas Grid Square system method. All surveys aboard NWS Fallbrook, if any, will follow the same methodology as the Base surveys and the results will be located in a separate report and checklist.

All new plants identified on Base will be recorded in the checklist and vouchered. There will be a minimum of eleven (11) field days for Option 2.

All rare plant populations that are not in the Base rare plant dataset will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The number of plants in each phenology stage (vegetative, flower bud, flowering, fruiting, and senescent), plant community, associated plants, aspect, disturbances, latitude, and longitude will be recorded.

Any new invasive species (and invasive species infestations) which are located on Base will be counted and mapped using a Global Positioning System (GPS) unit with a minimum of 3-meter accuracy. The number of individuals, latitude, and longitude will be provided to the BTR in the form of a spreadsheet for the field survey reports and will be in a Geographical Information System (GIS) dataset as part of the agreement deliverables.

All milkweed species used by the monarch butterfly will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The plant community will also be recorded.

During all field surveys, GPS units will be set to collect streaming line data to show what areas of the Base where surveyed, on what date, and by how many people. The collection of streaming line data will be disabled, or the GPS unit will be turned off, when not surveying. There should be no line features depicting where the vehicles were driven. The survey routes from all survey events shall be provided to the Land Management Section as a GIS feature class.

During the Plant Atlas project, the botanists associated with the project will be accompanied by Base resource management personnel. The purpose of this field shadowing experience is to provide Base personnel with excellent, hands-on botanical training to include: plant identification, survey methods, how to collect herbarium-quality voucher specimens, and how to record botanical field data. Such training is critical for Base Land Management personnel to gain perspective on invasive plant distributions, special plant species, and botanical habitat characteristics, which has applications to a wide variety of natural resource programs on base.

Task 2: Kick-Off Meeting

The Cooperator shall attend a kick-off meeting with the Land Management Section prior to conducting the field work. The purpose of the kick-off meeting is to discuss the purpose of the project, timelines, data management formats, explain Base access and security requirements/restrictions, clarify schedules, answer any questions the Cooperator may have regarding the project, and discuss other pertinent information which could have a bearing on the work to be performed. The Cooperator will prepare the kick-off meeting notes and include them in the first field survey report.

Task 3: Field Survey Reports

Within 10 calendar days after each field visit, the Cooperator will send an e-mail to the Base Technical Representative (BTR) and the Navy Technical Representative (NTR) with the following information:

- New Additions to the Base Checklist
- New Vouchers for Existing Species in the Base Checklist
- Rediscoveries of Plants Previously Documented on the Base
- New San Diego County records
- Rare Plant Species Observations
- Invasive Species Observations
- Any Other Notable Observations
- Spreadsheet of invasive species locations, which will have the following columns:
 - **scien_name**: Scientific name
 - **pop_date**: YYYYMMDD format
 - **pop_count**: Number of plants
 - **surveyor**: Name of surveyor
 - **elevation**: The elevation in meters.
 - **coord_x**: Longitude in decimal degrees (e.g., - 117.37094)
 - **coord_y**: Latitude in decimal degrees (e.g., 33.22736)
- Spreadsheet of rare plant locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
 - **scien_name**: Scientific name
 - **pop_date**: YYYYMMDD format
 - **pop_count**: Number of plants. The sum of the phenology stages should equal the pop_count.
 - **vegetative**: The number of individuals in the vegetative stage.
 - **flower_bud**: The number of individuals with flower buds.
 - **flowering**: The number of individuals flowering.
 - **fruiting**: The number of individuals fruiting and setting seed.
 - **senescent**: The number of individuals that have finished flowering, fruiting, and setting seed.
 - **hab_typ_d**: Habitat type domain value
 - **plant_comm**: The plant community following the most recent Vegetation Communities of San Diego County by Oberbauer.
 - **assoc_plants**: Separate scientific names with a comma and then a space
 - **aspect**: For example, NW (Steep)
 - **elevation**: The elevation in meters.
 - **coord_x**: Longitude in decimal degrees (e.g., - 117.37094)
 - **coord_y**: Latitude in decimal degrees (e.g., 33.22736)
- Spreadsheet of milkweed locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
 - **scien_name**: Scientific name
 - **pop_date**: YYYYMMDD format

- **pop_count:** Number of plants
- **plant_comm:**
- **surveyor:** Name of surveyor
- **elevation:** The elevation in meters.
- **coord_x:** Longitude in decimal degrees (e.g., - 117.37094)
- **coord_y:** Latitude in decimal degrees (e.g., 33.22736)

Task 4: Yearly Summary Report

A report is due for each year of this agreement. A separate report will be provided for any work conducted aboard NWS Fallbrook. A draft report (electronic [.doc and searchable .pdf]) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft report and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final report (electronic [.doc and searchable .pdf]), along with the responses to the comments. The BTR will review the pre-final report and provide comments to the Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final report (electronic [.doc and searchable .pdf]), along with the responses to the comments.

Nomenclature for this project will follow the most current edition of the Jepson Manual, the Jepson Online Interchange for California Floristics, the most current Checklist of the Vascular Plants of San Diego County, Hortus Third, and published volumes of the Flora of North America (Flora of North America Editorial Committee [<http://www.efloras.org>]). Additionally, original peer-reviewed research journal articles deemed to be appropriate for classification may be utilized as seen appropriate by the Curator of Botany.

The Cooperator will summarize the methods and results, and provide a discussion of the collection campaigns. The report will have the following sections:

1. **Introduction**

2. **Abstract**

3. **Data Collection**

- **New Additions to Camp Pendleton Plant Checklist:**

- New San Diego Records Collected during this Project: A table will be provided that includes scientific name, family, origin, life form, and description.
- New Additions to Camp Pendleton Plant Checklist: A table will be provided that includes scientific name, family, origin, life form, and description.

- **Rediscoveries of Plants Previously Documented on the Base:**

- This section will include a table of the rediscovered species that have not been collected on the Base since 1945.
- Another table will be provided that includes all the remaining plants that have not been observed since 1945.

- **Rare Plant Observations**

- This section will include a table of the rare plants observed during the project. The table will include the scientific name, family, plant community, associated plants, aspect, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

- **Invasive Plant Observations**
 - This section will include a table of the invasive plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Milkweed Observations**
 - This section will include a table of the milkweed plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Interesting Observations**
- **Bryophyte Collections to Date**
 - This information will be provided in a table.

4. Progress Towards Project Completion

5. Summary of Herbarium Voucher Collection Project

6. Acknowledgements

7. References

Task 5: Base Plant Voucher Checklist

The Base plant voucher checklist is due for each year of this agreement. A separate checklist will be provided for any work conducted aboard NWS Fallbrook. The checklist for NWS Fallbrook does not need to include the following columns: Voucher from SDSU, Is this Plant Counted, JM2 Common Name, Listed Rebnan 2006, Listed Jepson 1996, and Jepson 1996 Pg.

The Cooperator will update the Base plant voucher checklist with the new plant vouchers according to Table 1. A qualified botanist or biologist is required to complete this task. The checklist will be updated with any revisions to plant taxonomy and any recent synonyms will be entered into the checklist. The Cooperator will review and update federal, state, and CNPS (California Native Plant Species) status on the existing voucher checklist.

A draft checklist (electronic) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft checklist and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final checklist (electronic), along with the responses to the comments. The BTR will review the pre-final checklist and provide comments to the Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final checklist (electronic), along with the responses to the comments.

Option 2A:

Government

The government will facilitate base access, coordinate range access, assist with field collection and plant identification, and review data and reports.

Cooperator

Task 1: Herbarium Collecting

The Cooperator will collect herbarium specimens for the purpose of preparing a scientifically reputable floristic spreadsheet checklist for the Base. Plants will be collected in accordance to the San Diego Natural History Museum Plant Atlas Grid Square system method. All surveys aboard NWS Fallbrook, if any, will follow the same methodology as the Base surveys and the results will be located in a separate report and checklist.

All new plants identified on Base will be recorded in the checklist and vouchered. There will be a minimum of five (5) field days for option 2A.

All rare plant populations that are not in the Base rare plant dataset will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The number of plants in each phenology stage (vegetative, flower bud, flowering, fruiting, and senescent), plant community, associated plants, aspect, disturbances, latitude, and longitude will be recorded.

Any new invasive species (and invasive species infestations) which are located on Base will be counted and mapped using a Global Positioning System (GPS) unit with a minimum of 3-meter accuracy. The number of individuals, latitude, and longitude will be provided to the BTR in the form of a spreadsheet for the field survey reports and will be in a Geographical Information System (GIS) dataset as part of the agreement deliverables.

All milkweed species used by the monarch butterfly will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The plant community will also be recorded.

During all field surveys, GPS units will be set to collect streaming line data to show what areas of the Base where surveyed, on what date, and by how many people. The collection of streaming line data will be disabled, or the GPS unit will be turned off, when not surveying. There should be no line features depicting where the vehicles were driven. The survey routes from all survey events shall be provided to the Land Management Section as a GIS feature class.

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Task 2: Kick-Off Meeting

The Cooperator shall attend a kick-off meeting with the Land Management Section prior to conducting the field work. The purpose of the kick-off meeting is to discuss the purpose of the project, timelines, data management formats, explain Base access and security requirements/restrictions, clarify schedules, answer any questions the Cooperator may have regarding the project, and discuss other pertinent information which could have a bearing on the work to be performed. The Cooperator will prepare the kick-off meeting notes and include them in the first field survey report.

Task 3: Field Survey Reports

Within 10 calendar days after each field visit, the Cooperator will send an e-mail to the Base Technical Representative (BTR) and the Navy Technical Representative (NTR) with the following information:

- New Additions to the Base Checklist

- New Vouchers for Existing Species in the Base Checklist
- Rediscoveries of Plants Previously Documented on the Base
- New San Diego County records
- Rare Plant Species Observations
- Invasive Species Observations
- Any Other Notable Observations
- Spreadsheet of invasive species locations, which will have the following columns:
 - **scien_name:** Scientific name
 - **pop_date:** YYYYMMDD format
 - **pop_count:** Number of plants
 - **surveyor:** Name of surveyor
 - **elevation:** The elevation in meters.
 - **coord_x:** Longitude in decimal degrees (e.g., - 117.37094)
 - **coord_y:** Latitude in decimal degrees (e.g., 33.22736)
- Spreadsheet of rare plant locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
 - **scien_name:** Scientific name
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 - **plant_comm:** The plant community following the most recent Vegetation Communities of San Diego County by Oberbauer.
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 - **coord_x:** Longitude in decimal degrees (e.g., - 117.37094)
 - **coord_y:** Latitude in decimal degrees (e.g., 33.22736)
- Spreadsheet of milkweed locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
 - **scien_name:** Scientific name
 - **pop_date:** YYYYMMDD format
 - **pop_count:** Number of plants
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Task 4: Yearly Summary Report

A report is due for each year of this agreement. A separate report will be provided for any work conducted aboard NWS Fallbrook. A draft report (electronic [.doc and searchable .pdf]) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure

that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft report and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final report (electronic [.doc and searchable .pdf]), along with the responses to the comments. The BTR will review the pre-final report and provide comments to the Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final report (electronic [.doc and searchable .pdf]), along with the responses to the comments.

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The Cooperator will summarize the methods and results, and provide a discussion of the collection campaigns. The report will have the following sections:

1. Introduction

2. Abstract

3. Data Collection

- **New Additions to Camp Pendleton Plant Checklist:**
 - New San Diego Records Collected during this Project: A table will be provided that includes scientific name, family, origin, life form, and description.
 - New Additions to Camp Pendleton Plant Checklist: A table will be provided that includes scientific name, family, origin, life form, and description.
- **Rediscoveries of Plants Previously Documented on the Base:**
 - This section will include a table of the rediscovered species that have not been collected on the Base since 1945.
 - Another table will be provided that includes all the remaining plants that have not been observed since 1945.
- **Rare Plant Observations**
 - This section will include a table of the rare plants observed during the project. The table will include the scientific name, family, plant community, associated plants, aspect, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Invasive Plant Observations**
 - This section will include a table of the invasive plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Milkweed Observations**
 - This section will include a table of the milkweed plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Interesting Observations**

- **Bryophyte Collections to Date**
 - This information will be provided in a table.
- 4. Progress Towards Project Completion**
 - 5. Summary of Herbarium Voucher Collection Project**
 - 6. Acknowledgements**
 - 7. References**

Task 5: Base Plant Voucher Checklist

The Base plant voucher checklist is due for each year of this agreement. A separate checklist will be provided for any work conducted aboard NWS Fallbrook. The checklist for NWS Fallbrook does not need to include the following columns: Voucher from SDSU, Is this Plant Counted, JM2 Common Name, Listed Reberman 2006, Listed Jepson 1996, and Jepson 1996 Pg.

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Option 3:

Government

The government will facilitate base access, coordinate range access, assist with field collection and plant identification, and review data and reports.

Cooperator

Task 1: Herbarium Collecting

The Cooperator will collect herbarium specimens for the purpose of preparing a scientifically reputable floristic spreadsheet checklist for the Base. Plants will be collected in accordance to the San Diego Natural History Museum Plant Atlas Grid Square system method. All surveys aboard NWS Fallbrook, if any, will follow the same methodology as the Base surveys and the results will be located in a separate report and checklist.

All new plants identified on Base will be recorded in the checklist and vouchered. There will be a minimum of eleven (11) field days for Option 3.

All rare plant populations that are not in the Base rare plant dataset will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The number of plants in each phenology stage

(vegetative, flower bud, flowering, fruiting, and senescent), plant community, associated plants, aspect, disturbances, latitude, and longitude will be recorded.

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Task 2: Kick-Off Meeting

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- Invasive Species Observations
- Any Other Notable Observations
- Spreadsheet of invasive species locations, which will have the following columns:
 - scien_name: Scientific name
 - pop_date: YYYYMMDD format
 - pop_count: Number of plants
 - surveyor: Name of surveyor

- elevation: The elevation in meters.
- coord_x: Longitude in decimal degrees (e.g., - 117.37094)
- coord_y: Latitude in decimal degrees (e.g., 33.22736)
- Spreadsheet of rare plant locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
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 - **coord_x**: Longitude in decimal degrees (e.g., - 117.37094)
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- Spreadsheet of milkweed locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
 - **scien_name**: Scientific name
 - **pop_date**: YYYYMMDD format
 - **pop_count**: Number of plants
 - **plant_comm**:
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Task 4: Yearly Summary Report

A report is due for each year of this agreement. A separate report will be provided for any work conducted aboard NWS Fallbrook. A draft report (electronic [.doc and searchable .pdf]) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft report and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final report (electronic [.doc and searchable .pdf]), along with the responses to the comments. The BTR will review the pre-final report and provide comments to the Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final report (electronic [.doc and searchable .pdf]), along with the responses to the comments.

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The Cooperator will summarize the methods and results, and provide a discussion of the collection campaigns. The report will have the following sections:

1. Introduction

2. Abstract

3. Data Collection

- **New Additions to Camp Pendleton Plant Checklist:**

- New San Diego Records Collected during this Project: A table will be provided that includes scientific name, family, origin, life form, and description.
- New Additions to Camp Pendleton Plant Checklist: A table will be provided that includes scientific name, family, origin, life form, and description.

- **Rediscoveries of Plants Previously Documented on the Base:**

- This section will include a table of the rediscovered species that have not been collected on the Base since 1945.
- Another table will be provided that includes all the remaining plants that have not been observed since 1945.

- **Rare Plant Observations**

- This section will include a table of the rare plants observed during the project. The table will include the scientific name, family, plant community, associated plants, aspect, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

- **Invasive Plant Observations**

- This section will include a table of the invasive plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

- **Milkweed Observations**

- This section will include a table of the milkweed plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

- **Interesting Observations**

- **Bryophyte Collections to Date**

- This information will be provided in a table.

4. Progress Towards Project Completion

5. Summary of Herbarium Voucher Collection Project

6. Acknowledgements

7. References

Task 5: Base Plant Voucher Checklist

The Base plant voucher checklist is due for each year of this agreement. A separate checklist will be provided for any work conducted aboard NWS Fallbrook. The checklist for NWS Fallbrook does not need to include the following columns: Voucher from SDSU, Is this Plant Counted, JM2 Common Name, Listed Rebnan 2006, Listed Jepson 1996, and Jepson 1996 Pg.

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Option 3A:

Government

The government will facilitate base access, coordinate range access, assist with field collection and plant identification, and review data and reports.

Cooperator

Task 1: Herbarium Collecting

The Cooperator will collect herbarium specimens for the purpose of preparing a scientifically reputable floristic spreadsheet checklist for the Base. Plants will be collected in accordance to the San Diego Natural History Museum Plant Atlas Grid Square system method. All surveys aboard NWS Fallbrook, if any, will follow the same methodology as the Base surveys and the results will be located in a separate report and checklist.

All new plants identified on Base will be recorded in the checklist and vouchered. There will be a minimum of five (5) field days for option 3A.

All rare plant populations that are not in the Base rare plant dataset will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The number of plants in each phenology stage (vegetative, flower bud, flowering, fruiting, and senescent), plant community, associated plants, aspect, disturbances, latitude, and longitude will be recorded.

Any new invasive species (and invasive species infestations) which are located on Base will be counted and mapped using a Global Positioning System (GPS) unit with a minimum of 3-meter accuracy. The number of individuals, latitude, and longitude will be provided to the BTR in the form of a spreadsheet for the field survey reports and will be in a Geographical Information System (GIS) dataset as part of the agreement deliverables.

All milkweed species used by the monarch butterfly will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The plant community will also be recorded.

During all field surveys, GPS units will be set to collect streaming line data to show what areas of the Base where surveyed, on what date, and by how many people. The collection of streaming line data will be disabled, or the GPS unit will be turned off, when not surveying. There should be no line features

depicting where the vehicles were driven. The survey routes from all survey events shall be provided to the Land Management Section as a GIS feature class.

During the Plant Atlas project, the botanists associated with the project will be accompanied by Base resource management personnel. The purpose of this field shadowing experience is to provide Base personnel with excellent, hands-on botanical training to include: plant identification, survey methods, how to collect herbarium-quality voucher specimens, and how to record botanical field data. Such training is critical for Base Land Management personnel to gain perspective on invasive plant distributions, special plant species, and botanical habitat characteristics, which has applications to a wide variety of natural resource programs on base.

Task 2: Kick-Off Meeting

The Cooperator shall attend a kick-off meeting with the Land Management Section prior to conducting the field work. The purpose of the kick-off meeting is to discuss the purpose of the project, timelines, data management formats, explain Base access and security requirements/restrictions, clarify schedules, answer any questions the Cooperator may have regarding the project, and discuss other pertinent information which could have a bearing on the work to be performed. The Cooperator will prepare the kick-off meeting notes and include them in the first field survey report.

Task 3: Field Survey Reports

Within 10 calendar days after each field visit, the Cooperator will send an e-mail to the Base Technical Representative (BTR) and the Navy Technical Representative (NTR) with the following information:

- New Additions to the Base Checklist
- New Vouchers for Existing Species in the Base Checklist
- Rediscoveries of Plants Previously Documented on the Base
- New San Diego County records
- Rare Plant Species Observations
- Invasive Species Observations
- Any Other Notable Observations
- Spreadsheet of invasive species locations, which will have the following columns:
 - scien_name: Scientific name
 - pop_date: YYYYMMDD format
 - pop_count: Number of plants
 - surveyor: Name of surveyor
 - elevation: The elevation in meters.
 - coord_x: Longitude in decimal degrees (e.g., - 117.37094)
 - coord_y: Latitude in decimal degrees (e.g., 33.22736)
- Spreadsheet of rare plant locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
 - scien_name: Scientific name
 - pop_date: YYYYMMDD format
 - pop_count: Number of plants. The sum of the phenology stages should equal the pop_count.
 - vegetative: The number of individuals in the vegetative stage.
 - flower_bud: The number of individuals with flower buds.
 - flowering: The number of individuals flowering.
 - fruiting: The number of individuals fruiting and setting seed.
 - senescent: The number of individuals that have finished flowering, fruiting, and setting seed.

- hab_typ_d: Habitat type domain value
- plant_comm: The plant community following the most recent Vegetation Communities of San Diego County by Oberbauer.
- assoc_plants: Separate scientific names with a comma and then a space
- aspect: For example, NW (Steep)
- elevation: The elevation in meters.
- coord_x: Longitude in decimal degrees (e.g., - 117.37094)
- coord_y: Latitude in decimal degrees (e.g., 33.22736)
- Spreadsheet of milkweed locations, which will have the following columns (exact field names may change after migration to new SDSFIE version):
 - scien_name: Scientific name
 - pop_date: YYYYMMDD format
 - pop_count: Number of plants
 - plant_comm:
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Task 4: Yearly Summary Report

A report is due for each year of this agreement. A separate report will be provided for any work conducted aboard NWS Fallbrook. A draft report (electronic [.doc and searchable .pdf]) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft report and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final report (electronic [.doc and searchable .pdf]), along with the responses to the comments. The BTR will review the pre-final report and provide comments to the Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final report (electronic [.doc and searchable .pdf]), along with the responses to the comments.

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The Cooperator will summarize the methods and results, and provide a discussion of the collection campaigns. The report will have the following sections:

1. **Introduction**

2. **Abstract**

3. **Data Collection**

● **New Additions to Camp Pendleton Plant Checklist:**

- New San Diego Records Collected during this Project: A table will be provided that includes scientific name, family, origin, life form, and description.
- New Additions to Camp Pendleton Plant Checklist: A table will be provided that includes scientific name, family, origin, life form, and description.

- **Rediscoveries of Plants Previously Documented on the Base:**
 - This section will include a table of the rediscovered species that have not been collected on the Base since 1945.
 - Another table will be provided that includes all the remaining plants that have not been observed since 1945.
- **Rare Plant Observations**
 - This section will include a table of the rare plants observed during the project. The table will include the scientific name, family, plant community, associated plants, aspect, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Invasive Plant Observations**
 - This section will include a table of the invasive plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Milkweed Observations**
 - This section will include a table of the milkweed plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Interesting Observations**
- **Bryophyte Collections to Date**
 - This information will be provided in a table.

4. Progress Towards Project Completion

5. Summary of Herbarium Voucher Collection Project

6. Acknowledgements

7. References

Task 5: Base Plant Voucher Checklist

The Base plant voucher checklist is due for each year of this agreement. A separate checklist will be provided for any work conducted aboard NWS Fallbrook. The checklist for NWS Fallbrook does not need to include the following columns: Voucher from SDSU, Is this Plant Counted, JM2 Common Name, Listed Rebman 2006, Listed Jepson 1996, and Jepson 1996 Pg.

The Cooperator will update the Base plant voucher checklist with the new plant vouchers according to Table 1. A qualified botanist or biologist is required to complete this task. The checklist will be updated with any revisions to plant taxonomy and any recent synonyms will be entered into the checklist. The Cooperator will review and update federal, state, and CNPS (California Native Plant Species) status on the existing voucher checklist.

A draft checklist (electronic) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft checklist and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final checklist (electronic), along with the responses to the comments. The BTR will review the pre-final checklist and provide comments to the Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final checklist (electronic), along with the responses to the comments.

Option 4:

Government

The government will facilitate base access, coordinate range access, assist with field collection and plant identification, and review data and reports.

Cooperator

Task 1: Herbarium Collecting

The Cooperator will collect herbarium specimens for the purpose of preparing a scientifically reputable floristic spreadsheet checklist for the Base. Plants will be collected in accordance to the San Diego Natural History Museum Plant Atlas Grid Square system method. All surveys aboard NWS Fallbrook, if any, will follow the same methodology as the Base surveys and the results will be located in a separate report and checklist.

All new plants identified on Base will be recorded in the checklist and vouchered. There will be a minimum of eleven (11) field days for Option 4.

All rare plant populations that are not in the Base rare plant dataset will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The number of plants in each phenology stage (vegetative, flower bud, flowering, fruiting, and senescent), plant community, associated plants, aspect, disturbances, latitude, and longitude will be recorded.

Any new invasive species (and invasive species infestations) which are located on Base will be counted and mapped using a Global Positioning System (GPS) unit with a minimum of 3-meter accuracy. The number of individuals, latitude, and longitude will be provided to the BTR in the form of a spreadsheet for the field survey reports and will be in a Geographical Information System (GIS) dataset as part of the agreement deliverables.

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The Cooperator shall attend a kick-off meeting with the Land Management Section prior to conducting the field work. The purpose of the kick-off meeting is to discuss the purpose of the project, timelines, data management formats, explain Base access and security requirements/restrictions, clarify schedules, answer any questions the Cooperator may have regarding the project, and discuss other pertinent

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 - **pop_count:** Number of plants
 - **surveyor:** Name of surveyor
 - **elevation:** The elevation in meters.
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 - **hab_typ_d:** Habitat type domain value
 - **plant_comm:** The plant community following the most recent Vegetation Communities of San Diego County by Oberbauer.
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Task 4: Yearly Summary Report

A report is due for each year of this agreement. A separate report will be provided for any work conducted aboard NWS Fallbrook. A draft report (electronic [.doc and searchable .pdf]) shall be submitted within 30 days of conclusion of field work. It is the responsibility of the Cooperator to assure that all electronic deliverables are fully compatible and functional based on the current applications used by Environmental Security. The BTR will review the draft report and provide comments to the Cooperator. Within 10 calendar days of receipt of Government comments, the Cooperator will provide a pre-final report (electronic [.doc and searchable .pdf]), along with the responses to the comments. The BTR will review the pre-final report and provide comments to the Cooperator. Within 5 calendar days of receipt of Government comments, the Cooperator will provide a final report (electronic [.doc and searchable .pdf]), along with the responses to the comments.

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1. Introduction

2. Abstract

3. Data Collection

- **New Additions to Camp Pendleton Plant Checklist:**
 - New San Diego Records Collected during this Project: A table will be provided that includes scientific name, family, origin, life form, and description.
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 - This section will include a table of the rare plants observed during the project. The table will include the scientific name, family, plant community, associated plants, aspect, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Invasive Plant Observations**
 - This section will include a table of the invasive plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

- **Milkweed Observations**
 - This section will include a table of the milkweed plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.
- **Interesting Observations**
- **Bryophyte Collections to Date**
 - This information will be provided in a table.

4. Progress Towards Project Completion

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7. References

Task 5: Base Plant Voucher Checklist

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Option 4A:

Government

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Cooperator

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All new plants identified on Base will be recorded in the checklist and vouchered. There will be a minimum of five (5) field days for option 4A.

All rare plant populations that are not in the Base rare plant dataset will be counted and mapped using a GPS unit with a minimum of 3-meter accuracy. The number of plants in each phenology stage (vegetative, flower bud, flowering, fruiting, and senescent), plant community, associated plants, aspect, disturbances, latitude, and longitude will be recorded.

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 - **scien_name:** Scientific name
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 - **surveyor:** Name of surveyor
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• **Rediscoveries of Plants Previously Documented on the Base:**

- This section will include a table of the rediscovered species that have not been collected on the Base since 1945.
- Another table will be provided that includes all the remaining plants that have not been observed since 1945.

• **Rare Plant Observations**

- This section will include a table of the rare plants observed during the project. The table will include the scientific name, family, plant community, associated plants, aspect, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

• **Invasive Plant Observations**

- This section will include a table of the invasive plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

• **Milkweed Observations**

- This section will include a table of the milkweed plants observed during the project. The table will include the scientific name, family, latitude, longitude, elevation, and number of individuals. Latitude and longitude will be provided in decimal degrees.

• **Interesting Observations**

• **Bryophyte Collections to Date**

- This information will be provided in a table.

4. Progress Towards Project Completion

5. Summary of Herbarium Voucher Collection Project

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Task 5: Base Plant Voucher Checklist

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Table 1 is applicable to Base Year and all Options listed above.

**Table 1
Required Data for the MCB Camp Pendleton Plant Voucher Checklist**

Field	Description
Pendleton Checklist Tab:	
Voucher from SDSU	Voucher documented in Camp Pendleton special herbarium collection at San Diego State University: Y = Yes, N = No
Voucher in SDNHM Herbarium	Voucher documented in Camp Pendleton San Diego Natural History Museum herbarium collection: Y = Yes, N = No
Voucher	For example, "Rebman 13230".
Is this Plant Counted?	States if the species is counted and is included in the Pendleton Checklist tab and the reason it is counted. For example, "Yes. SDNHM Voucher". All "No" values are added to the Not Counted-No Vouchers Tab.
Sub - division	D = Dicotyledons F = Ferns & fern allies (Lycopods, Sphenopsids), M = Monocotyledons
Family	Family name.
Genus	Genus name.
SpEp	Specific epithet, or species name.

Field	Description
SpAuthor	Species authorship as cited in the most recent version of the Checklist of the Vascular Plants of San Diego County.
Rank	Subspecies (ssp.) or variety (var.) designation.
Infra. Name	Subspecific or varietal epithet.
Infra. Author	Infraspecific authorship as cited in the most recent versions of the Jepson Manual or the Checklist of the Vascular Plants of San Diego County.
Common Name	Common names as listed in the most recent versions of The Jepson Manual or the Checklist of the Vascular Plants of San Diego County.
JM2 Common Name	Common names as listed in the most recent versions of The Jepson Manual.
Origin	N = Native E = Exotic
Life History	Longevity: A = Annual B = Biennial P = Perennial AP = Annual or Perennial/Biennial
Growth Form	F = Forb G = Grass HS = Halfshrub S = Shrub V = Vine T = Tree TS = Tree/Shrub VF = Vine/Forb VS = Vine/Shrub
Listed Rebman 2014	Species listed in the 2014 version of the Checklist of the Vascular Plants of San Diego County (Y/N); (includes primary listing under a synonym).
Listed Jepson 2013	Species listed in The Jepson Manual 2013 (Y/N) (includes primary listing under a synonym).
Jepson 2013 Pg	Page number in The Jepson Manual 2013 on which description appears.
Listed Jepson <YEAR>	Species listed in the most recent version of the Jepson Manual (Y/N) (includes primary listing under a synonym).
Jepson <YEAR> Pg	Page number listed in the most recent version of The Jepson Manual which description appears.
Jepson 2013 name (if different)	State the scientific name listed in the 2013 Jepson Manual if it differs
Recent Synonyms	All recent synonyms will be included in this column.
Notes	Notes regarding likelihood of occurrence on Base, species distribution, naming convention, etc.
SDSU Voucher Notes	Important notes such as "insect damage", "sterile specimen", "unable to verify", and "misidentified".
Species Code (LTETM)	Species code used in the LTETM project. Codes are generally 6 to 7 letters, composed of the first 3 letters of the genus followed by the first 3 letters of the specific epithet and the first letter of the subspecies or variety, where applicable.

Field	Description
Status CNPS	CNPS ranking in the Latest edition of California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California (on http://www.rareplants.cnps.org/)
Status Fed	Federal status from United States Fish and Wildlife Service (USFWS).
Status CA	State of California listing status. This includes plants on the special plant list.
State Rank	The state rank describing the rank for this taxon over its state distribution.
Global Rank	The global rank describing the rank for this taxon over its entire distribution.
Family#	The spreadsheet will be sorted by Family, Genus, Infra Name. Then a "1" will be placed in the Family# column the first time a family is encountered.
Genus#	The spreadsheet will be sorted by Family, Genus, Infra Name. Then a "1" will be placed in the Genus# column the first time a genus is encountered.
Species#	The spreadsheet will be sorted by Family, Genus, Infra Name. Then a "1" will be placed in the Species# column the first time a species is encountered.
Taxa#	A 1 will be placed in this column for all taxa.
Contract Fiscal Year Added to List	The fiscal year when the plant was added to the checklist. It will be stated if this plant was a New Addition, Updated Voucher, New San Diego County Record, Variety Added, or added due to a Spatial Query.
Not Counted-No Vouchers Tab:	
Is this Plant Counted?	All plants that have a "No" value in this column will be placed in the spreadsheet located on the Not Counted-No Vouchers Tab.
Legend Tab:	
	This tab will be updated to include a description of all column headings.

GIS Description Below (Task 6) is applicable to Base Year and all Options listed above.

Geographical Information System (GIS)

The rare plant locations, invasive plant locations, milkweed locations, and survey routes will be provided to the Base as a deliverable. All GIS deliverables will meet the Base specifications. The BTR will provide the Cooperator with the current data dictionaries, geodatabase templates, and metadata instructions. The Cooperator will ensure that all attribute tables will follow the most current data dictionaries, will use the most current geodatabase templates, and will complete the metadata according to the instructions. The Base currently uses ArcGIS 10.1, but this may change prior to the GIS submittals.

Geographic data (regardless of format) shall be provided in U.S. Survey Feet and projected into the California State Plane, Zone VI, FIPS 0406 projection system. The maps and data shall use the GRS 1980 spheroid and the North American Datum 1983/World Geodetic System 1984 (NAD83/WGS84). Epoch 1991.35 shall be used. The vertical datum used is NAVD88.

7. SCHEDULE

Deliverable	Format	Due Date
Kick-off Meeting	N/A	Prior to field work
Kick-off Meeting Notes	Electronic	Included in First Field Survey Report
Field Survey Reports & Spreadsheets	Electronic	Within 10 calendar days following each field visit.
Report, Checklist, & GIS - Draft	Electronic	Within 30 calendar days of conclusion of field work
Report, Checklist, & GIS - Pre-final	Electronic	Within 10 calendar days of receipt of Government comments
Report, Checklist, & GIS - Final	Electronic	Within 5 calendar days of receipt of Government comments

8. DESIGNATED GOVERNMENT OFFICIAL

The Base Technical Representative (BTR) for this agreement is Gwen Kenney, Rare Plant and Vegetation Ecologist, Land Management Section, Environmental Security Department, MCI West-MCB Camp Pendleton (Phone: 760-763-6330; Email: gwen.kenney@usmc.mil).

The Contracting Officer's Representative is Paul Block at Natural Resource Specialist, Naval Facilities Engineering Command (NAVFAC) Atlantic (Phone: 757-322-8499, Email: paul.block@navy.mil).

9. GENERAL REQUIREMENTS AND INFORMATION

9.1 RANGE ACCESS

It is the Cooperator's responsibility to obtain security and entrance clearances for himself/herself and his/her personnel. All personnel surveying the Base must obtain a business pass or RapidGate pass from the PMO. The Cooperator must comply with all Base security rules, regulations, requirements, and day-to-day operational changes thereto. All vehicles providing services under this agreement will be subject to 100 percent search. The Base Commanding General has broad authority to remove or exclude any person in fulfilling his responsibility to protect personnel and property, to maintain good order and discipline, and to ensure the successful and uninterrupted performance of the Marine Corps mission. In exercise of this authority, the Commanding General may bar Cooperator employees. Barring of an employee does not relieve the Cooperator of the responsibility to continue performance under this agreement.

Range Safety Officer Training

At least one person on each survey team must pass the Non-Live Fire Range Safety Officer (RSO) test and become RSO certified. This written open-book test is given monthly on the Base. The Cooperator will confirm the RSO course time and location by calling Range Scheduling at 760-725-3510 or 725-4277. The RSOs will be the ones in communication with Range Control (Longrifle) using two-way radios. RSO certification can be revoked at any time if the cooperator: 1) does not possess the current MIM map, 2) does not maintain and monitor the net; 3) does not have a valid vehicle pass; 4) does not have a valid RFMSS reservation; 5) does not drive an appropriate truck-like vehicle with adequate clearance; 6) drives over the posted speed limit (if not posted, dirt roads have a maximum speed limit of 25 mph); 7) does not request permission from Longrifle to enter and leave a training area/range; 8) does not radio

Longrifle for medical emergencies; 9) drives on a closed road per the most current Road & River report; and 10) enters an impact area. This is not a complete list and there may be other reasons why RSO certification may be revoked.

Range Scheduling and Radios

Personnel are required to coordinate access to training areas with the BTR at Environmental Security. The BTR must be contacted and informed of scheduled work well in advance (minimum of two [2] weeks advance notice is required). After receiving the necessary clearance for work in training areas, personnel are required to communicate with Range Control (Longrifle) using two-way radios while in the field. This means that the RSO must request permission from Longrifle to enter and leave each training area. The RSO must maintain and monitor the net at all times. There are a limited number of radios available for check-out from the BTR. Since these radios are expensive and in high demand, the Cooperator will ensure that all radios are returned promptly and in good working order.

Vehicle Passes

In addition to obtaining a Business Pass or RAPIDGate™ access, personnel driving personally owned vehicles must carry an Environmental Security Vehicle Pass in order to conduct surveys aboard the Base. These passes are available through the BTR and they must be returned in good condition. Only truck-like vehicles with adequate clearance are allowed within training areas. The maximum speed limit on dirt roads is 25 mph and no off-road driving is allowed.

Naval Weapons Station Seal Beach Detachment Fallbrook

All Cooperator personnel while on Naval Weapons Station Seal Beach Detachment Fallbrook must carry vehicle passes and identification badges. The Cooperator shall contact the Station Contact to determine the badge and pass procedures. To obtain badges, the Cooperator and his personnel will need to provide the Station Contact with the following information prior to conducting work on the Station: Name, Date of Birth, Place of Birth, and Proof of Citizenship or Naturalization. The survey team will listen to a presentation in order to get the passes and badges.

The Cooperator and his personnel must possess a valid state driver's license to operate motorized vehicles on the Station, and shall provide evidence of insurance, required by California state law, for each non-government vehicle used at the Station. The Government will issue badges without charge. Each employee shall wear the Government issued badge over the front of the outer clothing. When an employee leaves the Cooperator's service, the employee's pass and badge shall be returned within 10 calendar days.

9.2 SECURITY REQUIREMENTS

Cooperator employees must comply with installation rules and regulations. The Cooperator is responsible for ensuring that each of its employees fully complies with the following provisions, and shall flow down to subcontracts a clause to satisfy this agreement obligation.

The Cooperator is responsible for providing information required to obtain clearances, permits, passes, or security badges that are required for Cooperator personnel or equipment access. This includes information required for police or background checks or investigations.

The Cooperator is responsible for ensuring such clearances, permits, passes, or security badges are promptly returned to the issuing activity upon termination of an employee, completion of a project, or termination of an agreement or subcontract.

All Cooperator personnel performing work under this agreement who require access to military installations shall obtain personal entry and vehicle passes from the Provost Marshall's Office (PMO) of each base. (For Marine Corps Installations West-MCB Camp Pendleton, this process currently includes the requirement that employees under a agreement of one year or longer obtain a Business Pass or RAPIDGate™ access, which require completion of an application used to conduct background checks.)

The Commanding Officer of each base has broad authority to remove or exclude any person from the military installation to protect personnel and property, to maintain good order and discipline, and to ensure the successful and uninterrupted performance of the Marine Corps mission. In the exercise of this authority, the Commanding Officer may refuse to grant personal entry passes or may bar the Cooperator, including employees who have been granted a personal entry pass. Refusal to grant an employee a personal entry pass or barment of an employee does not relieve the Cooperator of the responsibility to continue performance under this agreement.

The Cooperator's employees shall observe and comply with all base rules and regulations applicable to agreement personnel, including those applicable to the safe operation of vehicles, and shall not be present in locations not required for the proper performance of this agreement.

Cooperator personnel performing work under this agreement shall be readily identifiable as an employee of the Cooperator through the use of uniforms with nametags. The contracting officer may approve alternate methods of ensuring Cooperator personnel are readily identifiable.

Cooperator personnel and equipment entering a military installation are subject to security checks. The Cooperator shall follow any direction given by Military Police or other security or safety personnel.

The Immigration Reform and Control Act of 1986 (IRCA), Public Law 99-603 (8 U.S.C. 1324a) requires employers verify the eligibility of individuals for employment to preclude the unlawful hiring, or recruiting or referring for a fee, of aliens who are not authorized to work in the United States. By signing this agreement or by beginning work under this agreement, the Cooperator/Offeror certifies it has and will comply with IRCA, to include that it has verified the identity and employment eligibility of any individual employed who is or may be employed by the offeror and works under this agreement.

Application for Vendor/Cooperator Business Passes: The procedures below are the requirements for Camp Pendleton. Other installations will have similar requirements for obtaining business passes.

- A. The Cooperator will obtain a letter of support from the customer that their agreement ultimately supports. The letter of support will identify the Company Name, Agreement Number, period of performance of the Agreement, location of performance, the Drivers license and expiration date of each of the Cooperator's employees, and the point of contact information for the customer that signed the request. The Cooperator's personnel will take the letter of support to request either a business pass or RAPIDGate™ access to Support Services Police Administrative Services Branch (Bldg. 1523) for processing.
- B. Business Passes issued by Support Services Division's Police Admin Services Branch to vendors or Cooperators are effective from the date of issuance, for a period of 60 days or the end of the

agreement whichever date occurs first. Personnel denied a business pass might appeal in writing to the Commanding Officer, Marine Corps Base, Camp Pendleton (Attn: CMD Inspector). Denial or revocation of a business pass may be made if the applicant:

- i. Is listed on the National Terrorist Watch List.
- ii. Is not a U.S. Citizen and is illegally present in the U.S. or whose U.S. citizenship, immigration status, or Social Security Number (SSN) cannot be verified.
- iii. Is subject to an outstanding criminal warrant.
- iv. Whose business pass application contains false or fraudulent information.
- v. Has obtained a felony conviction within the last 10 years.
- vi. Has obtained a total of three criminal misdemeanor convictions within the last 10 years.
- vii. Who is a registered sex offender regardless of the date of the criminal offense.
- viii. Has obtained a criminal misdemeanor or felony conviction for the following types of criminal offenses:
 1. Offenses of a sexual nature;
 2. Offenses of violence;
 3. Offenses related to gang related activity, supremacist, or extremist behavior; i.e., hate crimes;
 4. Crimes resulting from the possession, use, manufacturer, introduction, or distribution of any illegal drug listed in the Comprehensive Drug Abuse Prevention & Control Act of 1970, Schedules I through IV;
- ix. Offenses in which weapon instrumentality (e.g., firearm, knife, or other bladed instrument, club, brass knuckles) was used either as a means of violence, or threat of violence
- x. Whose military active duty was terminated by the receipt of a dishonorable discharge or bad conduct discharge.
- xi. Has been issued a debarment order and is currently banned from any military installation.
- xii. Who has exhibited characteristics, traits, or other indications that cause concern for the safety or welfare of personnel and/or residents aboard the base; or that causes concern for the physical security of the base.

C. Camp Pendleton has implemented a Cooperator-managed security service, RAPIDGate™. RAPIDGate™ is consistent with and complementary to Homeland Security Presidential Directive 12 (HSPD-12) and the Federal Information Processing Standard 201 (FIPS 201). Participation in RAPIDGate™ is optional, but personnel who are not enrolled in RAPIDGate™ will be limited to gates which can safely accommodate traffic backups. Those gates are San Luis Rey, Las Pulgas, and San Onofre. All gates will be open to RAPIDGate™ registered personnel. Under the RAPIDGate™ program, personnel are vetted through a series of national and local record checks to determine whether they meet Camp Pendleton's criteria for access. The determination of whether to authorize a pass (badge) is made by the Government. The badges have Radio Frequency Identification (RFID) capability, and will be scanned upon entry onto the installation. Personnel departure from the installation will be recorded by passive RFID receivers. Contactor personnel who have been screened and are determined to be eligible for access will be required to self-register at kiosks located at the Main Gate, San Onofre Gate, as well as two additional kiosks located in Bldg. 1523 (PMO).

Personnel who choose not to participate in the RAPIDGate™ program will be required to obtain a 30-day business pass from PMO. These personnel will be required to access Camp Pendleton at the following gates: San Luis Rey, Las Pulgas and San Onofre.

Base access requirements and procedures may change during the term of a agreement. The Cooperator shall comply with all changes, and such compliance shall not be grounds for a request for an equitable adjustment or other agreement modification.

9.3 ADDITIONAL REQUIREMENTS

- A. Privacy Act: Work on this project does not require that personnel have access to Privacy Information. Personnel shall adhere to the Privacy Act, Title 5 of the U.S. Code, Section 552a and applicable agency rules and regulations.
- B. Hours of Work: Personnel are expected to conform to client agency normal operating hours. The client currently utilizes "5-4-9" with coverage Monday through Thursday 7:00 a.m. - 4:30 p.m., and 7:00 a.m. - 3:30 p.m. on alternate Fridays. Actual hours of work shall be agreed upon at project start up. Work outside of normal work hours, if required, shall be discussed and agreed upon between the Cooperator and the BTR.
- C. All personnel shall be responsible for complying with all applicable Federal Acquisition Regulations (FAR) and the Defense Acquisition Regulations (DFAR). In accordance with (FAR 32-702) regarding the Government Policy on agreement funding and 31 USC 1341 Anti-Deficiency Act: should the Cooperator work at risk without an official notification from the Government to continue, the Cooperator may not be compensated for the value of work performed while funding had been exceeded.
- D. All main Cooperator personnel working on this project are required to be US citizens. In addition, main Cooperator personnel working on this project shall be fluent in the English language as exemplified in their written and verbal skills.
- E. This project is funded by the United States Government. All intellectual property generated and/or delivered pursuant to this Performance-Based Statement of Work shall be subject to appropriate federal acquisition regulations which entitle the Government to unlimited license rights in technical data and computer software developed exclusively with government funds, a nonexclusive "paid-up" license to practice any patentable invention or discovery made during the performance of the agreement, and a "paid-up" nonexclusive and irrevocable worldwide license to reproduce all works (including technical and scientific articles) produced during the agreement.
- F. All field notes, field data forms, digital computer files, photographs, hardcopy aerial photographs, and all other supplies and merchandise purchased or produced under this agreement are the property of the U. S. Marine Corps. These data will not be used, in whole or in part, for any professional, scientific or non-scientific report, paper or note, published or unpublished or be part of any technical or non-technical presentation without the written pre-authorization of the Environmental Security. In addition, all intellectual property generated and/or delivered pursuant to this Statement of Work *will not* be published without formal consent from the U. S. Marine Corps.

- G. Photography is restricted on the Base, except for requirements outlined in this document. All photographs are the property of the Federal Government and will not remain with the Cooperator once the images are processed. A CD of all photos shall be delivered to the Base at the end of the period of performance.
- H. The Cooperator shall provide all transportation, meals, and lodging for himself/herself and his/her personnel and all equipment and analyses necessary to complete the work. All equipment utilized on the Base is subject to inspection by and approval of the Base safety program.
- I. Some areas of the Base may be inaccessible due to road conditions following heavy and/or prolonged rainfall. Adjustments to work schedules due to road/weather conditions shall be coordinated with the POC. If your vehicles gets stuck or breaks down, military personnel cannot pull or tow your vehicle. Call Mainside service station (760-725-5828) who will refer you to a civilian wrecker service or call information (411) for assistance.
- J. All personnel are to be familiar with the Camp Pendleton Fire Danger Rating System (FDRS). Personnel are required to observe all restrictions applicable under the FDRS pertaining to permit activities while on the Base. In particular, vehicles shall be parked only on bare soil/rock. Smoking is restricted to areas of bare soil. Fires of any nature are prohibited.
- K. Do not pickup, remove, or disturb any ordnance (spent or live ammunition, brass, pyrotechnics, etc) found while on Camp Pendleton.
- L. The Cooperator is prohibited from bringing pets to the Base.
- M. The Cooperator is expressly prohibited from doing any animal or plant collection on the base beyond what is covered within this Agreement unless written approval is obtained from the Director of Environmental Security.
- N. The Cooperator shall review pertinent files at the Base and shall work closely with the Base Technical Representative in planning and carrying out any necessary field investigations. Recent color aerial photos of the work areas are available for inspection at the Environmental Security office. These photos may be examined; however, they may not be checked out. GIS information such as raster data and layers may be available upon request.
- O. The Cooperator shall visit the designated area as often as necessary and within the limits stated below to accomplish the purpose of this project as detailed further in this Statement of Work. It is the Cooperator's responsibility to obtain security and entrance clearances for himself/herself and his/her personnel. The Cooperator must comply with all Base security rules, regulations, requirements, and day-to-day operational changes thereto.
- P. All installation and maintenance activities on MCB Camp Pendleton are subject to approval of and scheduling with the Station Commanding Officer. It is understood that military training activities at the Base will take precedence over all biological surveying. The Cooperator shall obtain Base access passes and submit their installation schedules to the MCB Camp Pendleton for approval before beginning work in the field. Provide this information to the BTR who will

forward the information to Base Range Control. It is understood, however, that primary Base needs may override such schedules for unanticipated activities approved by the Station Commanding Officer.

- Q. Insurance: Within 15 days after the award of this agreement, the Cooperator shall furnish the Contracting Officer a Certificate of Insurance as evidence of the existence of the following insurance coverage in amounts not less than the amounts specified below. The Certificate of Insurance shall provide for thirty days written notice to the Contracting Officer by the insurance company prior to cancellation or material change in policy coverage. The Cooperator shall procure and maintain, during the entire period of performance under this agreement, the following minimum insurance coverage.
- Comprehensive General Liability: \$500,000 per occurrence.
 - Automobile Liability: \$200,000 per person; \$500,000 per occurrence; \$20,000 per occurrence for property damage.
 - Worker's Compensation: As required by Federal and State worker's compensation and occupational disease statutes.
 - Employer's Liability coverage: \$100,000, except in states where worker's compensation may not be written by private carriers.
 - Other as required by State Law.
- R. The Cooperator shall keep copies of all e-mail correspondence pertaining to the project.