Hawaii Rare Plant Restoration Group

Instructions and Methods for Submitting HRPRG Rare Plant Field Data and Background Information

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This document, provided by Hawaii Rare Plant Restoration Group, serves as guidance when observing, inventorying, monitoring, and collecting rare plant populations in Hawaii. Attached are two forms the HRPRG recommends for use: the *Rare Plant Background Data Form* and the *Rare Plant Field Data Form*.

Rare Plant Background Data Form

This form is to be used in the office and does not need to be taken into the field. Information can be obtained from the Field Data Form or from other reference sources.

Population Reference: This code is assigned by the U.S. Fish and Wildlife Recovery Program Coordinator in the Hawaii Office and Hawaii State Botanist to be consistent with National CPC standards. It is cross-referenced with individual agency population reference designations. For example, the first individual marked in the first population of *Cenchrus agrimonioides agrimonioides* would have the reference code Cenagragr-A-01.

All other requested information is self-explanatory.

Rare Plant Field Data Form

This form is designed for use in the field. It has an introductory section where general population tracking information can be recorded (i.e. species, population numbers, observers, location, etc.). It has an *Individual Plants* section for use when conducting a detailed population inventory or monitoring, or when collecting material for taxonomic, genetic, or propagation purposes. It has a *Population Structure* section for tracking the age class within a population and a *Population Information* section for tracking phenology, vigor, and environmental characteristics such as canopy height and closure, topography, and edaphic conditions. Instructions for filling out each of these sections are listed below.

Scientific Name: Genus and species.

Agency Ref. Code: Provide the population number assigned by the observer, or the observer's agency. An abbreviation of the population location can be included in the code. For example a *Cenchrus agriminoiodes agriminoiodes* in Makua Military Reservation would have an Agency Reference Code of Cenagragr-MMR-A-01.

Observers: Name all observers present.

Agency: Identify the observer's agency affiliation.

Location/Directions/
Flagging scheme: Record any and all information that could assist in relocating the population, including geographical coordinates (UTM or Lat.-Long. or GPS coordinates). Also indicate if a GPS file exists and if it was entered into a GIS database. Further descriptive directions could be included which would help to locate the population such as landmarks, trails and transect stations.

Photo Taken (Y/N)
Notes: Record whether or not photographs were taken this visit. If so, record photo record number, type and speed of film and other pertinent information that could aide in tracking-down previously taken photographs. If fixed photo points were used, describe their location(s). A point of contact who is in possession of the negatives and other information about the photograph should be included.

Elevation: Record the elevation of the population in feet or meters (use the "~" symbol to indicate "approximate").

Date: Record date of field visit.

Individual Plants: This section must be completed when collecting fruit, optional when not.

Plant Number: Record existing plant number or assign one. Must sketch a map and/or use a tag to indicate plant number.

Tagged: Indicate whether or not the population is marked (including your own numbered tag, flagging or label).

Sex: For plants with perfect flowers indicate P (perfect). Indicate sex of only plants with imperfect flowers (having only male or female reproductive parts within a flower). Indicate in this column M (male); F (female), B (both) if male and female flowers exist on the same plant. Mark Unk (unknown) if sex can not be determined.

Height: Measure or estimate height or length of plant. Height is measured from the substrate to the point on the plant furthest from the substrate. Length is used for prostrate or climbing plants such as vines and grasses.

Basal Diameter: Record estimated diameter at 1 decimeter (dm) above root crown. If you choose to use diameter at breast height (DBH), then indicate so in the header of this column. Indicate N/A for plants with impossible situations such as Bunchy grass.

Age Class: Use definitions from the ***Population Structure*** section below.

Reproductive

Status: Indicate the reproductive status of the individual [i.e. In a vegetative state, in bud, in flower, possessing immature fruit, possessing mature fruit, or in a dormant (post reproduction) stage].

Vigor: Assess the vigor of the individual plant; use your best judgment.

Material Collected:

# immature fruit/seed:	Record number taken (indicate fruit or seed)
# mature fruit/seed:	Record number taken(indicate fruit or seed)
# cuttings:	Record number taken
Propagule destination:	Identify where the propagules will be sent

Plan for Propagules Collected: Identify the intended fate of propagules collected

Population Structure: This table must be completed for all site visits. This table is designed to track the age structure of the population. If an actual count is performed, fill out column titled "counted number of individuals". If only an estimate is performed, fill out column titled "estimated number of individuals." Identify the age class of the individual and define your age classes (Examples of age class definitions could be: Mature = Indication that the plant has reproduced at some point in it's life, Immature = > 1 dm, but no indication of previous reproduction, Seedling = < 1 dm, no evidence of previous reproduction).

Population Information: These boxes are intended for use in *all* population visits.

Accuracy level: Indicate whether data is an actual count of all individuals or an estimate of the population. Circle % or actual count.

Phenology: Designate phenological state for all plants recorded as mature in population structure section. Record actual numbers of individuals in each category or estimate % of population that falls into each category by circling % or actual count. Could exceed 100% because any given plant could be fruiting and flowering at the same time.

Condition: Indicate the "health" condition of the population by recording the number of individuals in each category or by estimating the % of the population that falls into each category. Circle % or actual count.

Light level: Indicate the light level in the immediate environment of the plant. Full sun, >95% of the day in direct sunlight, partial sun 50-95% of the day in direct sun, partial shade 5-50% of the day in direct sun,

deep shade 0-5% of the day in direct sun. Indicate % or actual count for each category.

Habitat Characteristics: These boxes are intended for use in *all* population visits. For the following categories, mark only one choice or indicate *why* more than one choice was marked.

Overstory Closure: Circle the appropriate overstory closure class which defines the habitat of the plant. Overstory is defined as the vegetation above 2 meters.

Overstory height: Indicate overstory height which defines the habitat of the plant. Choose all that apply.

Understory Closure: Circle the appropriate understory closure class which define the habitat of the plant. Understory is defined as the vegetation below 2 meters.

Soil Drainage: Circle the appropriate soil drainage descriptor. Well = No standing water high oxide content. Moderate = wet with medium oxide content. Poor = Reducing conditions show green or gray colored soils. Hydric = standing water at or just below surface.

Topography: Circle appropriate topographic position of plants.

Moisture class: Circle the appropriate estimated moisture regime. (This may not be possible from field observations and should be confirmed through weather station data or other sources.) If you mark more than one, explain.

Slope: Circle the estimated slope of the ground at the population.

Aspect: Indicate the aspect if there is a slope at the location (N, NW, NNW, etc.) Write in N/A for flat sites.

Associated Species:

Overstory: In order of abundance, record the most abundant associated overstory taxa (>2 meters) in the vicinity of the plant including those which define that type of habitat. Indicate genus/species, can use 6-letter abbreviations. If the rare plant population is very scattered and associated species vary over its distribution, list the associated species but indicate they are in no particular order.

Understory/ Ground Cover: In order of abundance, record the most abundant associated Understory taxa (<2 meters) in the vicinity of the plant including

	those which define the habitat of that plant. Indicate genus/species, can use 6-letter abbreviations. If the rare plant population is very scattered and associated species vary over its distribution, list the associated species but indicate they are in no particular order.
Substrate:	Identify the substrate (i.e. type of soil, cinder, sand, pahoehoe, etc.).
Threats and Management:	Identify any observed or perceived threats (i.e. weed species, ungulates, rodents, invertebrates, disease, fire, erosion, poor health).Identify necessary or suggested management actions or list other comments. Also indicate any management actions taken on the visit.
Sketch map:	Please draw, to the best of your ability, a map of the site that could be used to relocate the population by persons who have never been there. Indicate individual plant locations on map if fruit collected