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Banded Application of Phosgard 0-40-0 to a representative area in Guam's Pago Watershed

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ABSTRACT

Water quality and coral reef health in Guam are greatly affected by surface runoff from sedimentation. Mitigation strategies (i.e. tree planting) are difficult to implement in highly degraded settings. We propose to conduct research testing mitigation strategies focusing on ameliorative soil enrichment. We hypothesize that increasing the soils' resiliency in Guam's Pago Watershed by banded application of Phosgard 0-40-0 will address critical soil fertility deficiencies (i.e. phosphorus, organic matter, and pH levels). Subsequent landscape scale mitigation projects on Guam may better address reduction from the damaging energy in surface water runoff resulting in extreme soil erosion and sedimentation. These actions are important to support landscape scale restoration of native forest plants.

In a representative area of 100' x 50', a treatment area of 40' x 50' with a slope of 5-7%, Phosgard 0-40-0 (0.5lb) will be applied to three treatment contour lines (20'L x 0.5'W x 0.25'H). Baseline data collection will include line transect and reference photo plots. Specialized tools will be used to take before treatment soil samples which will be analyzed to measure nutrient content, organic matter, and pH level.

Data regarding vegetative response to banding of Phosgard 0-40-0 will be collected and used to determine treatment effectiveness. This method of applying Phosgard 0-40-0 may be further refined and simplified in the future, which will permit the public to assist in conservation efforts. For future studies, the effectiveness of limestone quarry dust may be tested as a low cost locally available soil amendment for landscape scale mitigation projects.

Key Terms: Guam's Pago Watershed, Phosgard 0-40-0, Representative Area

55 Banded Application of Phosgard 0-40-0 to a representative area in Guam's Pago Watershed
Flisco et al.

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