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Collection, Processing, and Storage of Native Seeds for Ecological Restoration

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Faced with harsh and highly unpredictable climate, limited water availability and relatively short growing period, Kuwait's native vegetation are under tremendous pressure from large environmental fluctuations over time. Prior to the Gulf War, rangeland deterioration in Kuwait resulted from overgrazing, off-road vehicular movements, uprooting of plants, sand encroachment, and drought. Post-Gulf War, the rangeland resources came under additional pressures such as physical disruption of soil by placement of mines, construction of bunkers, foxholes, and movement of heavy machinery, and petroleum oil pollution caused by large numbers of devastated oil wells. Such highly degraded rangelands are very slow to recover requiring several decades to re-establish naturally. Therefore, specific short-to-medium and long-term restoration measures are needed to accelerate vegetation regeneration. This will require large numbers of keystone native species to be planted or seeded.

Kuwait Institute for Scientific Research (KISR) has been making concerted efforts to collect, process, test the quality and store seeds of keystone native species for use in *ex-situ* conservation and restoration of degraded ecosystems. In this regard, a year-round program has been developed to collect seeds from the wild based on seed maturity and quality. Additionally, several studies were conducted to develop efficient quality testing and storage protocol for these native seeds. KISR also established 15 ha of field plots of native plants for mass production of seeds and plants. These efforts have proved highly successful and efficient. The seeds produced in the field products are harvested, processed and maintained in short-, medium- and long-term storages for their future use in restoration of degraded ecosystems. The presentation will discuss KISR experience in this area and will highlight future strategy to meet planting material demands of conservation and ecological restoration projects.

Keywords: Ecological restoration, seed propagation, restoration seed bank, seed farming, biodiversity conservation.

Biography:

Dr. Suleiman is a Research Scientist and Program Manager of Desert Agriculture and Ecosystems Program at the Kuwait Institute for Scientific Research. She acquired a Ph.D. in Biological Sciences (Thesis- Restoration Ecology of *Acacia pachyceras* in the State of Kuwait) from the University of Western Australia. She earned a B.Sc. Botany from Kuwait University and is a certified Desert Landscaper. She has led many research projects and authored several research papers in her main areas of research: conservation, restoration, rehabilitation, and standardization of propagation techniques for native plants of Kuwait for their utilization in landscape projects.