Draft Version

***Shorebirds and Their Non-Breeding Habitat in North American***

Shorebirds (sub-Order Charadrii) are a diverse group of species, comprising plovers, stilts & avocets, sandpipers, curlews, godwits, turnstones, dowitchers, snipes, and phalaropes. They are conspicuous members of avian communities inhabiting wetlands, beaches, and rocky coastlines of North America. Most species breed in Arctic, sub-arctic, prairie pothole, or semi-desert areas. Individuals that migrate along the east coast and through interior continental corridors east of the Rocky Mountains winter primarily from the southeastern U.S. coast to the southern tip of South America. Those that migrate along the Pacific Flyway west of the Rocky Mountains primarily winter from southern British Columbia to northern South America, although some species like Rock Sandpipers may winter as far north as Alaska.

North American shorebird habitat in the non-breeding seasons, mostly unvegetated or sparsely vegetated wetlands, is often characterized by its ephemeral availability to the birds. The temporal scale of changing availability differs among habitats. In tidal habitat on our coasts, availability changes predictably by the hour, but habitat is present every year as long as it is not destroyed by shoreline development. At inland areas, in contrast, habitat availability changes, usually not within a day, but over days, months, or years.

On the coasts, tidal habitats are alternately exposed and flooded over the course of a day; they are primary foraging areas for shorebirds when exposed, but when flooded the birds are forced to seek higher ground. Tidal amplitude along our coastlines is not constant. In the micro-tidal Chesapeake Tidewater Area the difference between low and high water levels is a 1-2 meters range, whereas in the meso-tidal San Francisco Bay area the range is 2-4 meters. Macro-tidal areas such as the Bay of Fundy experience dramatic tidal ranges of over 8 meters. Tides create a rich but dynamic habitat that cannot be ignored in project design, both as a key variable in the interpretation of census results and for the safety of project personnel. For many questions, tide level at the time of surveys should be fixed by design.

Interior habitats, mostly comprising permanent or semi-permanent wetlands, are used by shorebirds primarily as resting and fueling stops during fall and spring migration. Additionally, there are a smaller number of shorebird species that mostly spend very little time near or in wetlands. For example, up to half the world's population of Mountain Plovers spends their winter largely in dry, sparsely vegetated agricultural or short-grass fields of southern California.

Much of the interior is arid, particularly west of the Mississippi River, and wetlands there are dependent on water derived from retained winter precipitation, or from rivers and streams that carry montane precipitation to wetlands. While variability in precipitation is key to dictating the extent and location of interior wetlands, human diversion of water for irrigation and other uses can have an equally strong influence, particularly on very shallow (semi-permanent) wetland areas. Too little water reaching such a wetland can destroy the habitat value for shorebirds by reducing the prey base below the birds' needs; too much water may flood both semi-permanent and permanent wetlands beyond the level at which shorebirds can forage. Years of anomalously wet or dry weather may greatly complicate the interpretation of survey data from some interior regions.