require creativity and understanding of inter-species relationships and Habitat relationships, so that identification and monitoring of species and Habitat attributes/conditions can be implemented to improve monitoring efficiency.

In establishing the long-term Biological Monitoring Program, careful attention will be given to how sampling protocols can provide feedback to the objectives of the MSHCP that are designed to ensure the long-term survival of Covered Species in the MSHCP Conservation Area. The MSHCP uses Adaptive Management prescriptions that should be treated as working hypotheses. The information collected by the Biological Monitoring Program will assist Reserve Managers in adapting management activities to meet species and Habitat/Vegetation Community objectives and to determine appropriate management actions.

5.3.2 Monitoring Goals and Objectives

The goals of the Biological Monitoring Program are to fulfill the strategically required inventory and monitoring of plant and animal species and Habitat/Vegetation Communities in support of the MSHCP and to provide data upon which management decisions will be made. To meet the goals, the Biological Monitoring Program must provide sufficient, scientifically reliable data for Reserve Managers to assess the MSHCP's effectiveness at meeting resource objectives and achieving or maintaining a healthy MSHCP Conservation Area in perpetuity. The inventory and monitoring aspects of the program will range from simple short-term efforts, such as field verifying existing species occurrence records, to long-term monitoring of population status and trend. The monitoring program will seek to accommodate as many diverse life history strategies of species as possible that could be affected over the long-term by implementation of the MSHCP. Where feasible, the intent is to monitor groups or suites of similar species in a community context that includes gathering data on Habitat attributes, vegetative composition, and structure.

A critical relationship exists among three key sections of the MSHCP: the species objectives, the Biological Monitoring Program, and the Adaptive Management strategy. It is necessary that the commitment to the Biological Monitoring Program be substantial enough from a scientific basis to assess whether species objectives are being met. In turn, the Adaptive Management strategy relies on the presence of an appropriate level of monitoring to drive management decisions if departure from objectives occurs. The MSHCP has developed species-specific objectives (summarized in *Section 9.0* of this document, and detailed in *Section B* of the *Reference Document - Volume II of the MSHCP*), intended to provide for the long-term Conservation of the Covered Species. These

objectives will influence the type and intensity of monitoring that needs to be implemented to address biological questions on species and Habitats. Representative questions to be addressed through inventory and monitoring activities include:

- What is the status (*e.g.*, presence/absence, number of populations, relative abundance, reproductive activity, etc.) and distribution of the Covered Species?
- What Habitats or substrates do the Covered Species rely on?
- How is the status of the Covered Species changing over time?
- How many acres of each Vegetation Community are there in the MSHCP Conservation Area?
- How is each Vegetation Community distributed?
- How is the abundance and distribution of each Vegetation Community changing over time?
- What is the condition (*e.g.*, percentage cover exotic versus native vegetation, disturbance and fire history, etc.) of each Vegetation Community, and how is it changing over time?

In addition to the implementation of monitoring activities to meet species and Habitat/Vegetation Community objectives, the Biological Monitoring Program will implement several thematic objectives including the following:

- Seek creativity and efficiency in monitoring protocols;
- Use multi-species or community-level efforts when possible;
- Ensure technically and logistically feasible implementation;
- Recognize the need for adaptability in monitoring strategies based on data and feedback mechanisms; and
- Develop products that are scientifically reliable and responsive to the management needs.

5.3.3 Monitoring Program Implementation Sequence

The Biological Monitoring Program will be implemented in phases, and phases may overlap in time to increase flexibility and opportunity during implementation. This approach recognizes the uncertainty involved in achieving milestones (such as completing an inventory of species "X") in a discrete period of time, and thus is forgiving enough to allow milestones to be developed or achieved over a range of time rather than by a specific date. For example, inventory on some species groups may be completed in four years, whereas on others, the inventory may be completed in one