**Supplementary Figure legend**

**Figure S1.** Additional representative photographs of the bubble-tip sea anemone *Entacmaea quadricolor* encompassing a broad range of geographic and phenotypic variation. A) Fares-Maathodaa, Maldives, B) Kwajalein Atoll, Marshall Islands, C) Fares-Maathodaa, Maldives, *i* = smooth column of *E. quadricolor* lacking verrucae. D) Gulf of Oman, United Arab Emirates, E) Saudi Arabia, Red Sea. Photographs by Benjamin Titus and Scott Johnson.

**Figure S2**. Additional representative images of the beaded sea anemone *Heteractis aurora* encompassing a broad range of geographic and phenotypic variation. A) Bali, Indonesia, B) Fares-Maathodaa, Maldives, C) Kwajalein Atoll, Marshall Islands, D) Fares-Maathodaa, Maldives, E) Aqaba, Jordan, Red Sea. Photos by Morgan Bennett-Smith, Benjamin M. Titus, and Scott Johnson.

**Figure S3.** Additional representative images of the leathery sea anemone *Radianthus crispa* encompassing a broad range of geographic and phenotypic variation. A) Saudi Arabia, Red Sea, B) Gulf of Oman, United Arab Emirates. C) Kwajalein Atoll, Marshall Islands. D) Moorea, French Polynesia. E) Kwajalein Atoll, Marshall Islands. Photographs by Morgan Bennett-Smith, Benjamin M. Titus, and Scott Johnson.

**Figure S4.** Additionalrepresentative images of the long-tentacled sea anemone *Radianthus doreensis*. A) Kwajalein Atoll, Marshall Islands, B) Bali, Indonesia, C-E) Anilao, Philippines. All photographs from Scott and Jeanette Johnson.

**Figure S5.** Additional representative images of the magnificent sea anemone *Radianthus magnifica* encompassing a broad range of geographic and phenotypic variation. A) Tioman Island, Malaysia, B) shallow reef flat *R. magnifica* at 0.5m depth (Fares-Maathodaa, Maldives). C) Moorea, French Polynesia, D) cluster of shallow nearshore *R. magnifica* at 0.5m depth (Moorea, French Polynesia, E) cluster of shallow *R. magnifica* at 0.5m depth with short tentacles (Moorea, French Polynesia. Photographs from Morgan Bennett-Smith and Benjamin M. Titus.

**Figure S6.** Additional representative images of the malu sea anemone *Radianthus malu* encompassing a broad range of phenotypic variation. All photographs from the Japanese Archipelago and taken by Takuma Fuji.

**Figure S7.** Additional representative images of the giant carpet sea anemone *Stichodactyla gigantea* encompassing a broad range of phenotypic variation. A) Kimbe Bay, Papua New Guinea, B) Okinawa, Japan, C) Okinawa, Japan, D) Palawan, Philippines, E) Okinawa Japan. Photographs by Morgan Bennett-Smith, Takuma Fuji, and Sara Heim.

**Figure S8.** Additional representative images of Haddon’s sea anemone *Stichodactyla haddoni* encompassing a broad range of phenotypic variation. A) Majuro Atoll, Marshall Islands, B) Small juvenile (10cm) individual (Majuro Atoll, Marshall Islands). C) Bright Red individual (Kwajalein Atoll, Marshall Islands), D-E) Majuro Atoll, Marshall Islands. Photographs by Benjamin M. Titus and Scott Johnson

**Figure S9.** Additional representative images of Merten’s sea anemone *Stichodactyla mertensii* encompassing a broad range of phenotypic variation. A) Saudi Arabia, Red Sea B) Individual with visible column and (*i*) verrucae that extend the entire length of column (Saudi Arabia, Red Sea), C) Saudi Arabia, Red Sea, D) Fares-Maathoda, Maldives, E) Saudi Arabia, Red Sea. Photographs by Morgan Bennett-Smith and Benjamin M. Titus

**Figure S10.** Additional representative images of the pizza/adhesive anemone *Cryptodendrum adhaesivum*. A) Fares-Maathoda, Maldives, B) Kwajalein Atoll, Marshall Islands, C) Saudi Arabia, Red Sea, D) Kwajalein Atoll, Marshall Islands, E) Kwajalein Atoll, Marshall Islands. Photographs by Scott Johnson and Benjamin M. Titus.