Colonial Nesting Seabird Guild

Black Skimmer *Rynchops nigra*
Brown Pelican *Pelecanus occidentalis*
Common Tern *Sterna hirundo*
Forster's Tern *Sterna forsteri*
Gull-billed Tern *Gelochelidon nilotica*
Least Tern *Sterna albifrons*
Royal Tern *Thalasseus maximus*
Sandwich Tern *Thalasseus sandvicensis*


Black Skimmer photo by NPS

Contributors (2005): Thomas M. Murphy, Sally R. Murphy, and DuBose Griffin [SCDNR]
Reviewed and Edited (2012): Felicia Sanders (SCDNR)

DESCRIPTION

Taxonomy and Basic Description

This guild ranges from the diminutive Least Tern (wing span of 50.8 cm or 20 in.) to the sizeable Brown Pelican (wing span of 228.6 cm or 90 in.). Members represent 4 families, but are grouped into a guild because they nest on small coastal islands in mixed colonies. The 3 families are: Pelecanidae (pelicans), Rynchopidae (skimmers), and Laridae (gulls and terns).


Royal Terns photo by Felicia Sanders

Smallest of the North American terns, the Least Tern measures 21 to 23 cm (8.3 to 9.1 in.). This tern has a black cap with a white forehead. Least Terns are grey above and white below with two black outer primaries. The bill is yellow or orange with a dark tip (Thompson et al. 1997).

The Sandwich Tern is intermediate in size between the Royal and Common Tern but with a much different body shape than either. Sandwich Terns are sized 34 to 45 cm (13.4 to 17.7 in.) and weigh between 180 and 300 g (6.3 to 10.6 oz.). This tern is the only crested tern with a black bill, the tip of which is yellow. They are uniformly gray above, darker on their outer primaries, and have a white rump and tail. Underneath, Sandwich Terns are white with dark grayish edges under the primaries. The cap is entirely black with a spiky crest (Shealer 1999).

The Gull-billed Tern is another medium-sized tern measuring 33 to 38 cm (13 to 15 in.) (Parnell et al. 1995). The Gull-billed Tern has a black bill and is similar in size to the sandwich but has a stockier, gull-like build, longer legs, and a thicker, shorter bill. The upper wing of the gull-billed tern is uniform with a black line on the edge of the primaries, a gray rump, and a similar tail. Gull-billed terns have black ear patches (Shealer 1999).

Common Terns are medium-sized terns with a length of 31 to 35 cm (12.2 to 13.8 in.), including elongated outer tail feathers forming a 6 to 9 cm (2.4 to 3.5 in.) fork. These terns weigh between 110 and 145 g (43 to 57oz.). Adult breeding Common Terns are light gray above and below with a black cap, orangish-red legs, and an orange-red bill with black tip. There is extensive black on outer primaries that is very obvious on the closed wing (Nisbet 2002)

Forster's Terns are typically 33 to 36 cm (13 to 14 in.) long and weigh 130 to 190 g (4.6 to 7.0 oz.). Both sexes are mostly white during the breeding season with a black cap, pale gray wings, and a deeply forked tail. These terns have orange legs and variably black-tipped orange bills (McNicholl et al. 2001).

The Royal Tern is the largest crested tern with a length of 45 to 50 cm (18 to 20 in.) and a weight of 350 to 450 g (12 to 16 oz.). Both sexes of the Royal Tern have long, orange bills and forked tails. The breeding plumage of the royal tern is gray above and white below with a full black cap and shaggy crest. The rump is very pale gray with a white tail. The legs and feet are black and the eyes dark brown (Buckley and Buckley 2002).

The Black Skimmer is a slim bird with a black back and white belly. Males and females vary greatly in size with lengths between 40 and 50 cm (16 to 20 in.). Weight for females averages 265 g (9.3 oz.) while male weights average 365 g (12.9 oz.). The bill of the Black Skimmer is unique: half red and half black, long, and laterally flattened (Gochfield and Burger 1994).

The Brown Pelican is one of two North American pelicans and is easily distinguished from its counterpart, the white pelican. White pelicans are larger with white bodies and black primaries. Brown Pelicans are gray to gray-brown with a black-brown belly. This coastal seabird is very large, measuring 100 to 137 cm (3.3 to 4.5 ft.) with a long bill (25 to 38 cm, 9.8 to 14.9 in.) and extensible gular pouch (Shields 2002).

Status

Least Terns are listed as state threatened, but coastal populations have no official federal designation since they are most abundant along the Gulf and Atlantic Coasts. Nevertheless, Least Terns are classified as threatened, endangered or a species of concern for most states because of the loss of nesting habitat (Thompson et al. 1997).


Brown Pelican Photo by Felicia Sanders

Brown Pelicans were formally listed as endangered, but were removed from the list in 2009 as both numbers and reproductive success recovered. Gull-billed Terns and Black Skimmers are listed as state species of concern.

POPULATION SIZE AND DISTRIBUTION

This guild of birds supports populations with thousands of nesting pairs. All of the birds are subject to loss of suitable nesting habitat, which can cause abrupt changes in numbers. Members of this guild are probably at much lower population levels than they were historically. Common and Forster's Terns are peripheral and occur in low numbers. A more detailed status review through 1996 can be found in Wilkinson (1997) with Royal Tern, Sandwich Tern, and Brown Pelican trends found in Jodice et al. (2007). See Figures 1 through 6.

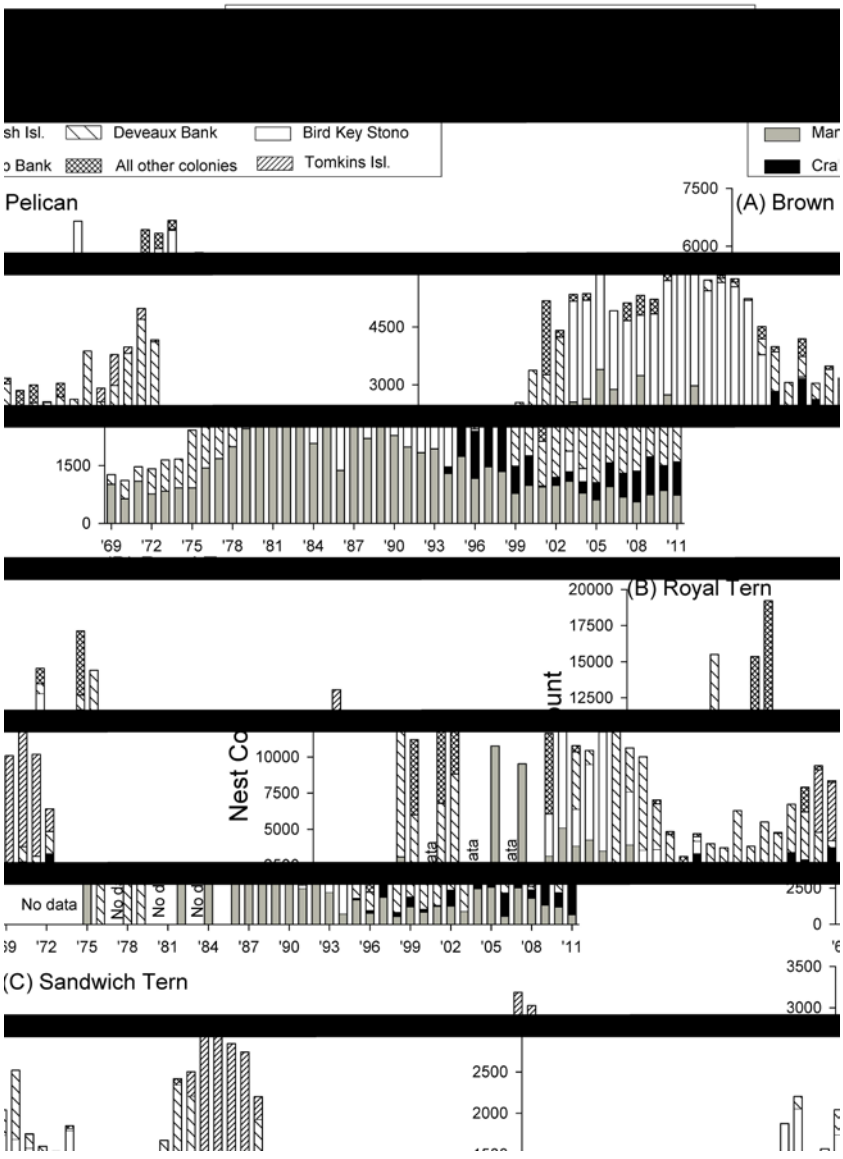


Figure 1: Brown Pelican, Royal Tern, and Sandwich Tern nest numbers by year at 6 different sites in SC.

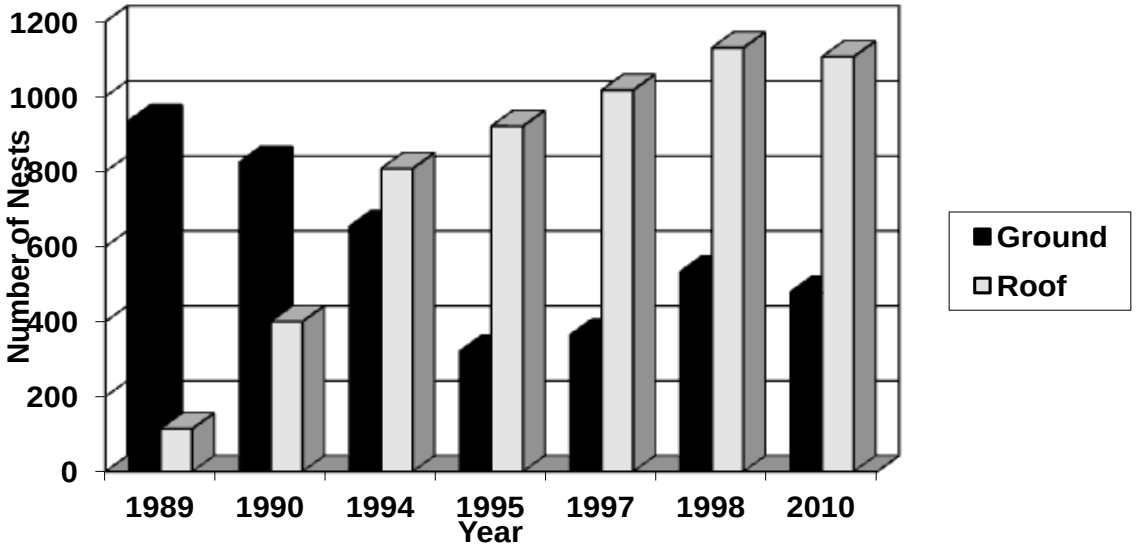


Figure 2: Number of Least Tern nests in South Carolina on the ground (beaches and spoil sites) and on graveled roof tops. Use of graveled roof tops increased in the last two decades due to disturbance on beaches.

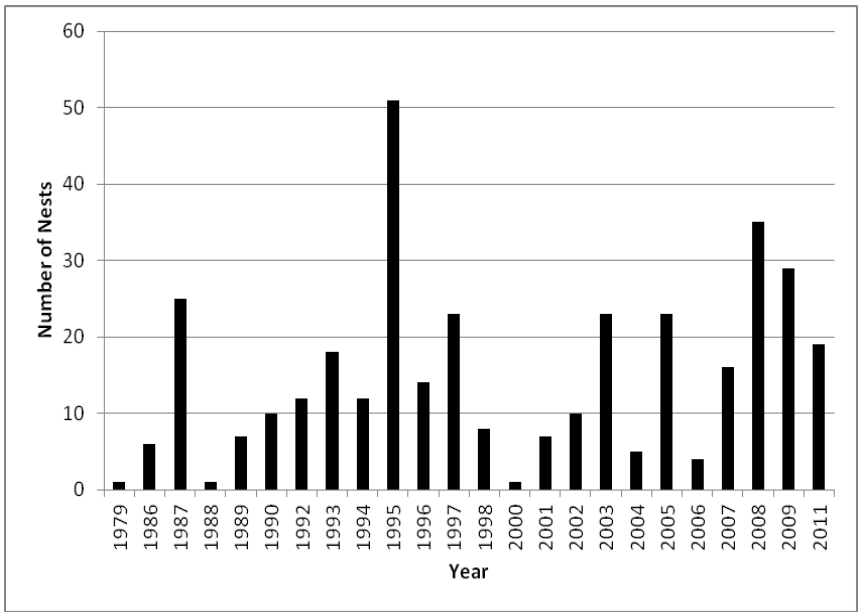


Figure 3: Number of Common Tern nests in South Carolina.

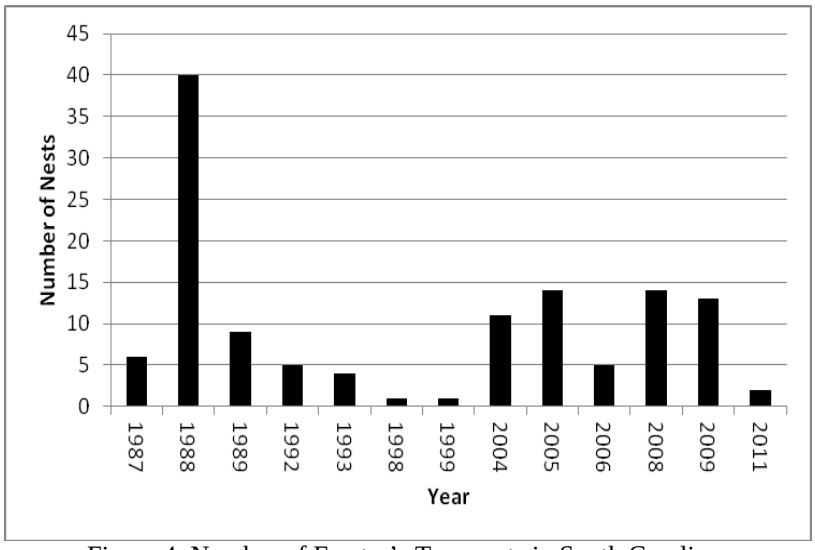


Figure 4: Number of Forster's Tern nests in South Carolina.

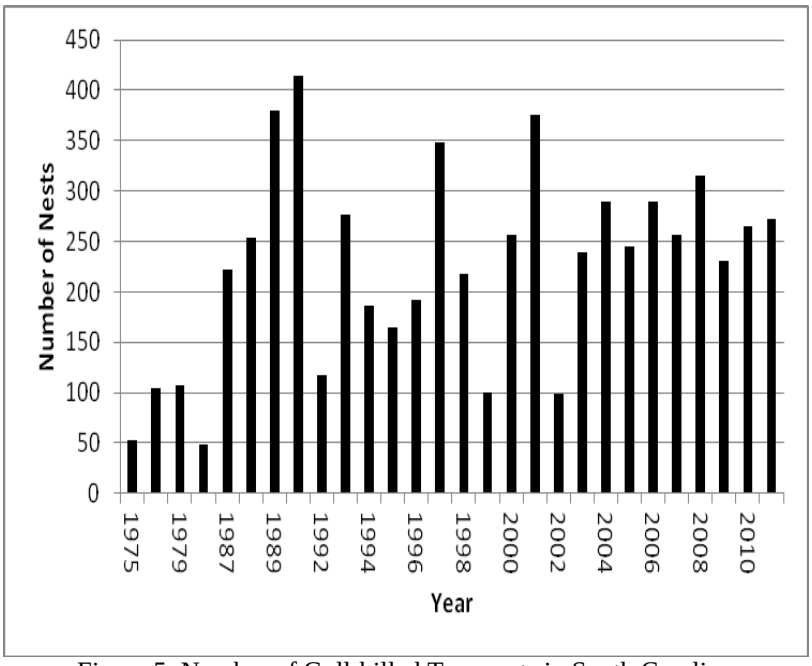


Figure 5: Number of Gull-billed Tern nests in South Carolina

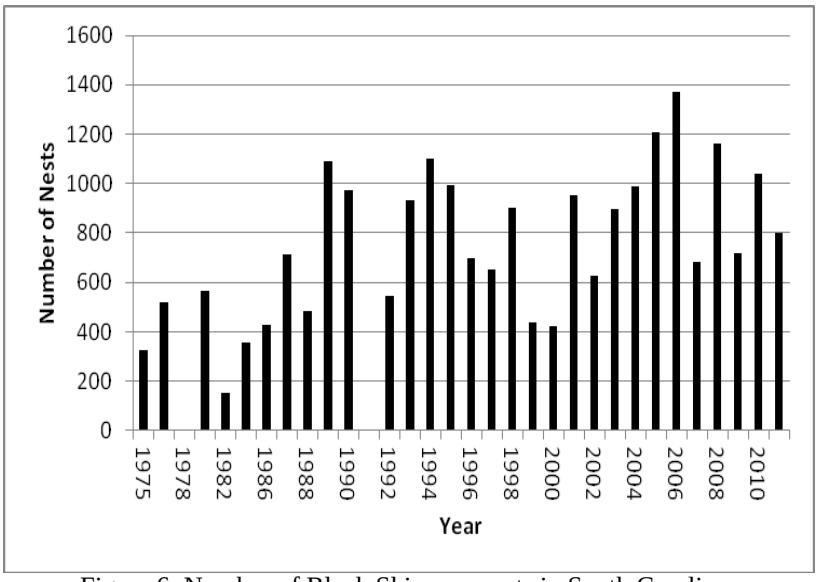
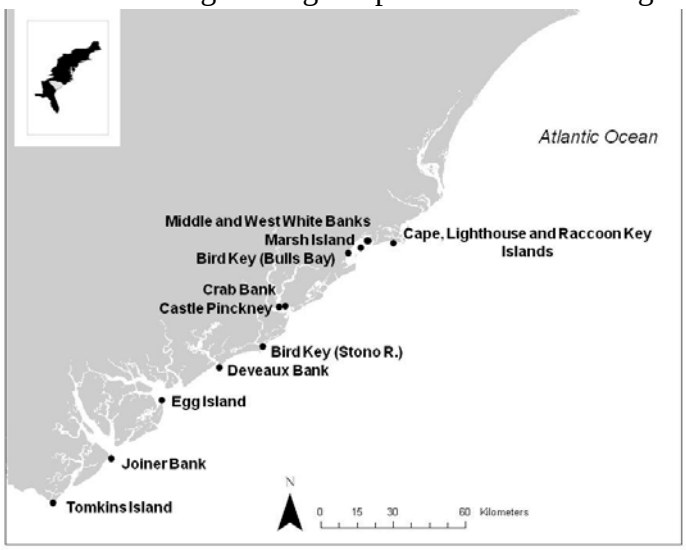


Figure 6: Number of Black Skimmer nests in South Carolina.

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Seabirds usually nest on isolated coastal islands that are high enough to prevent over-washing and too small to support mammalian predators. Most active nesting sites in the state are located in Charleston County. Colony sites with multiple species require habitats ranging from bare sand or shell to low grass or shrub vegetation. The ends of larger islands are used by several species. Nesting colonies serve as information exchange centers to facilitate location of prey that has a patchy and changing distribution. In addition, least terns began nesting on roofs in 1975. A majority of nesting now occurs on roofs and requires an innovative management approach.



Locations of seabird colonies in South Carolina. These locations include sites that are currently active and sites that have had use in the past.

This guild is principally picivorous and feeds in nearshore and estuarine waters of the state. During the nesting season, foraging is limited to areas within 16 to 24 km (10 to 15 mi.) of nesting sites. Terns typically plunge dive for food, while Pelicans and Skimmers have specialized foraging strategies. This guild also utilizes shrimp trawler by-catch.

CHALLENGES

Members of this guild share both nesting and foraging sites and are usually impacted by the following factors: loss of suitable nesting habitat; disturbance at nest and roost sites; predation,

especially during nesting; soft tick infestation; loss of suitable roof nesting sites; oil spills; and loss of prey base.


Soft tick infestation of a pelican nest. Photo by SCDNR

Seabirds nest at sites that are prone to sudden and dramatic changes. Storms and hurricanes can alter or destroy nesting islands at any time. Loss of a single colony site can result in major, lasting impacts to statewide populations. Many of the islands currently in use by seabird colonies are owned by state or federal government agencies.

With ever increasing coastal development and associated boat use, protection of seabird colonies has become increasingly difficult. During the nesting season, several thousand nests can be negatively impacted by a single disturbance event such as a person entering a nesting colony during the heat of the day. Egg temperatures are significantly altered when the brooding parent is forced from the nest. Dogs that often accompany their owners are a particular problem as they run through the colonies destroying eggs, killing or injuring chicks, and causing parent birds to leave chicks unattended and therefore vulnerable to aerial predators.

Predation by avian and mammalian predators significantly lowers nest success and can cause complete colony abandonment. Mammalian predators such as American mink and raccoon are frequently found on barrier islands, and trapping of these predators may be necessary to decrease loss of seabird, shorebird, and sea turtle nests. Great Horned Owls can cause colony abandonment and will prey on seabird adults and chicks. Nest abandonment associated with tick infestations has frequently affected Pelican rookeries in the state. These ticks (*Ornithodoros* spp.) feed mostly at night and complete a blood meal in a matter of hours; therefore, they are infrequently seen on the birds. Close examination of nests and chicks is required to detect the presence of ticks except when they are present in high densities. Infestations can involve thousands of ticks per nest and result in nest abandonment.

Least Terns have been able to maintain their nesting population by utilizing roofs with a pea-gravel substrate for nesting. A large proportion of the current population was hatched and has nested exclusively on roofs. During Hurricane Hugo (1989), the fact that the pea-gravel can become ballistic in high winds was discovered and is now only rarely used on roofs; this resulted in fewer suitable roofs available for tern nesting. Further, although roof nesting sites can be productive, they frequently flood during thunderstorms, lack perimeter barriers to prevent chicks from falling, and may receive excessive disturbance.

In addition, Least Terns have begun using Charleston County's Ravenel Bridge over the Cooper River as an additional nesting site. Gulls have used the concrete supports beneath the bridge to open clams, leaving the shells behind. The terns have used this material as a substrate for their nests. Protection of the chicks from falling off of these supports is needed. SCDNR is in discussions with SCDOT about providing these.

CONSERVATION ACCOMPLISHMENTS

South Carolina has the longest running seabird nesting trends dataset in the Southeast.

Nesting areas are posted and closed on an annual basis. In addition, 3 nesting islands were given Sanctuary Status by the SC Budget and Control Board on March 21, 2006. This status closed Crab Bank and Bird Key Stono to boat landings and public access from March 15–October 15. Deveaux Bank is closed to public access year-round above the high tidal line. Dogs and camping are prohibited year round on these nesting islands. Research was conducted to determine if the partial closure on Deveaux was adequate. This project documented bird use in the intertidal zone during the nesting season. Additional research, in conjunction with Clemson University, has been conducted on reproductive success and causes of nest loss on numerous seabird species (Sachs 2009, Brooks 2011). Seabird use of shrimp trawler's by-catch was examined, and this food source may be an important component of nearshore seabird diet off the South Carolina coast (Wickliffe 2010). Long-term, complete annual census data are available for most species, and banding has been conducted on several of the guild members. Spraying of ticks has been evaluated as a means to prevent nest loss in Brown Pelicans (Eggert 2008). Sites are monitored for ticks and sprayed when needed. Finally, one nesting island (Tomkins Island) was constructed for use by nesting seabirds. Tomkins Island had over 11,000 tern nests in 2009, only 4 years after construction.

CONSERVATION RECOMMENDATIONS

- Protect birds during the nesting season with adequate and timely posting and effective law enforcement.
- Establish or maintain suitable nesting islands at 48 km (30 mi.) intervals along the coast to maximize use of foraging habitat during the nesting season.
- Evaluate management actions and determine population trends using annual monitoring with complete ground counts or aerial counts.
- Continue cooperative efforts with the US Fish and Wildlife Service to census and manage nesting sites within Cape Romain National Wildlife Refuge.
- Monitor soft tick infestations and provide suitable treatment as needed.
- Conduct cooperative projects with the US Army Corps of Engineers to construct and maintain seabird-nesting sites under the authority of Section 204 of the Water Resources Development Act of 1992.
- Develop a public education program by creating and maintaining a web site with information on the status, management, and natural history of seabirds in South Carolina. Build partnerships on private and federal lands to promote conservation of seabirds.
- Develop oil spill contingency plans to protect nesting sites and provide rehabilitation of oiled birds.
- Maintain the fish prey-base for long-term success of these species.
- Continue to investigate management techniques that will improve reproductive success of these species.
- Continue to band seabirds to gather additional information on recruitment, dispersal, and migratory patterns.

- Participate in the development of monitoring protocol and data storage that can be used by the entire Southeast region. Support development of a Southeast Seabird Working Group.

MEASURES OF SUCCESS

This guild of birds is subject to rapid shifts in distribution and abundance and will require adaptive management to respond to these changes. Maintaining stable or increasing seabird populations regionally will represent a measure of success.

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