

Status and Distribution of the Common Ground-Dove in South Carolina

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Introduction

In 1949, the status of the Common Ground-Dove (*Columbina passerina*) in South Carolina was described as a "common permanent resident in the southeastern half of the State, less frequent in the interior" (Sprunt and Chamberlain 1949). Even at that time the authors noted this dove was "much less common than years ago in places like Sullivan's Island, where removal of vegetation had reduced the breeding sites." Forty years later, the ground dove was considered to be a "fairly common but local resident on coast; most common on islands. Uncommon to rare away from coast...." (Post and Gauthreaux 1989). Within a few years, however, this assessment had changed. McNair and Post (1993) noted that ground doves were "locally fairly common on the sea islands, and locally uncommon on adjacent mainland, until about early 1970s. Starting in the mid-1970s, it declined precipitously; it is now rare to locally uncommon."

Declines have been noted elsewhere for this species in the Southeast. In North Carolina, at the northern edge of its breeding range, ground doves were almost extirpated as breeders by 1991 (LeGrand 1991). In Florida, where, along with Texas the largest numbers occur in the United States (Price *et al.* 1995), Ogden (1989) commented on "the near disappearance of this once common bird....even in remote regions of Everglades National Park...." In Alabama, Jones and Mirarchi (1988) noted a reduction of the species over the last 20-40 years, and it was recently designated a Species of Special Concern in that state (Jones and Mirarchi 1988).

In response to reported ground dove declines in South Carolina and other southeastern states, the species was considered a threatened species "in need of management" by the South Carolina Department of Natural Resources in 1989. In 1993 we initiated a survey to better determine the status and distribution of Common Ground-Doves in South Carolina.

Methods

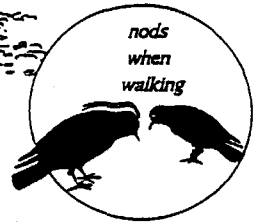
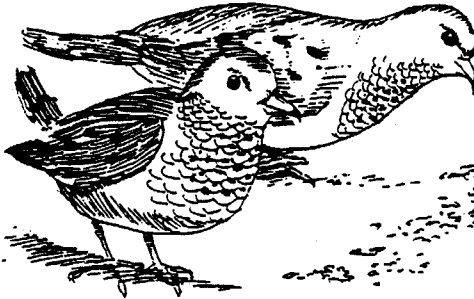
We began our survey in March 1993, by using a commercially-taped ground dove call played through a 12-volt, 32-watt amplifier and broadcast through two horn-type speakers mounted on a vehicle luggage rack. Taped playbacks have been effectively used to survey for various birds including

Sighting Reports Needed for...

GROUNDDOVES



burnt orange
color on wings



Ground Doves are sparrow-size (6-1/2") versions of Mourning Doves with short tails. In South Carolina this bird is confined primarily to the coastal islands and is apparently declining in numbers. Ground Doves are unwary around man and are often attracted to backyard bird feeders where they feed on the ground.

Assistance can be especially helpful from the public in reporting sightings of any concentrations of these birds and their locations with regular occurrences.

For further information or to report sightings

please write or phone the

**South Carolina Wildlife and Marine Resources Department,
Nongame Section, PO Box 167, Columbia, SC 29202.**

Phone: (803) 734-3893 or Fax: (803) 734-3951

Fig. 1. Poster used to solicit Common Ground-Dove sightings in South Carolina

raptors (Fuller and Mosher 1981, Rosenfield *et al.* 1985), rails (Marion *et al.* 1981, Runde *et al.* 1990), grebes (Johnson *et al.* 1981), and bitterns (Swift *et al.* 1988). We played the tape for 5 min. at 0.3 km (0.2 mi) interval "stops." Based on field tests, the amplified calls were audible for distances of at least 0.4 km (0.25 mi) on each side of the vehicle in the open or semi-open habitats that represented most of the survey locations. Surveys were conducted on coastal islands, and in some cases the adjoining mainland, that represented a range of development intensities from none (South Island, Bull Island, Capers Island, Intracoastal Waterway (surveyed by boat), and Savannah River Spoil Site) to light to moderate (Huntington Beach State Park, Debordieu Beach, and Romain Retreat Development) to heavy (Pawley's Island, Sullivan's Island, Isle of Palms, Folly Beach, and Edisto Beach).

We also used in-house news releases and posters (Fig. 1) distributed statewide to newspapers, wildlife offices, and other appropriate outlets to solicit sighting information from birders, wildlife biologists, conservation officers, landowners, and the general public.

Results

From March through June 1993, we drove and boated nearly 100 km (60 mi) and made 250 survey stops. Only eight doves were recorded at five locations: Pawley's Island (2), Romain Retreat (1), Sullivan's Island (2), and Savannah River Spoil Site (3). Although some ground doves responded to the taped calls by flying near the vehicle or showing themselves in roads or openings, we never heard any doves call in response to the tape. We also believed that some doves were overlooked and either did not respond to the tape or were hidden from view since we knew they occurred in some of the survey locations. We concluded that amplified tape playbacks were an ineffective way to survey for ground doves and discontinued using this technique after 1993.

Between 1994 and 1996 we relied on reports from interested persons and the general public to document ground dove distribution in South Carolina. During this time we received reports from 64 locations in 24 counties (Fig. 2). No reports were received from six of the 28 coastal plain counties: Bamberg, Darlington, Dillon, Marion, Marlboro, and Williamsburg. The most inland report was one bird from Anderson County on 17 December 1994.

Most reports from the outer coastal plain were centered around high-growth areas - Beaufort, Charleston, and the Pawley's Island-Garden City beaches. Inland reports were mostly from the "farm belt" counties, especially Orangeburg, Lexington, southern Edgefield, Calhoun, Clarendon, Sumter, Allendale, and Hampton Counties. The latter two counties had more reports than any other inland counties. Relatively few reports came from the eight coastal zone counties away from the beaches and islands (Fig. 2). This area is heavily forested with little farmland and other open country. Few reports came from the Pee Dee area, despite this being one of the most intensively farmed regions in the state.

Ground doves were reported from all months of the year. However, three months, March, September, and December, accounted for 42% of the total. February, October, and November combined for the fewest reports, with only

13%. Reports of multiple birds during the nesting season (primarily April-June) suggested the possibility of nesting for the following counties: Jasper, Beaufort, Colleton, Charleston, Georgetown, Horry, Hampton, Allendale, Lexington, Orangeburg, Florence, and Chesterfield.

The number of birds reported was generally five or less, but nine locations, all of which but one were coastal, reported eight or more doves at one time: Myrtle Beach, Garden City, Huntington Beach State Park, Litchfield Beach, Pawley's Island, Sullivan's Island, Edisto Beach, Harbor Island, and Barnwell County. Sullivan's Island had the highest reported number at "18-28 doves at one time" (Paul Shaw, pers. comm.).

Discussion

Most ground doves reported during this survey came from the outer coastal plain. A number of sightings, however, were from inland localities where little ground dove documentation has occurred. Since ground doves have not been known to breed inland (Post and Gauthreaux 1989), the suggestion of breeding at several inland sites is significant. Possible inland breeding sites that warrant further investigation for confirmed breeding include the Eutawville area and sod farms in Orangeburg County; parts of Allendale and Hampton Counties, including the Webb Wildlife Center; central Sumter County; western Florence County on the Lee County border; southwestern Chesterfield County near McBee; and the Pelion area of Lexington County. A recent observation by Glover (April 1999) of two ground doves in southern Edgefield County at a location where ground doves have been seen before also suggests possible breeding at the most inland site in South Carolina. Some inland reports could also represent post-breeding vagrants, since it appears that some ground doves move inland in fall (Landers *et al.* 1977).

Like many columbids, ground doves are relatively weak-legged seed eaters that avoid dense vegetation and forage on bare or sparsely-vegetated ground. Inland habitats from which ground doves were reported included peach orchards, sod farms, livestock yards, peanut fields, young clearcuts, sandhills, dirt roads, "dove fields" and other fields. These habitats are all characterized as early successional, usually featuring some open or bare ground, and are consistent with habitat use reported by others. In southwestern Georgia, Landers and Buckner (1979) found ground doves nesting in 5-year pine plantations and feeding in small clearings with sparse herbaceous cover. Ground doves at inland sites in Alabama preferred old fields and young pine plantations and were strongly associated with sandy soils (Jones and Mirarchi 1988).

With most sightings coming from the southwestern coastal plain west of the Santee River and few from the Pee Dee area, the inland distribution of ground doves in South Carolina conformed with earlier literature. Interestingly, this distributional pattern is similar to that of the Painted Bunting (*Passerina ciris*; South Carolina Breeding Bird Atlas data, unpublished), another declining species that uses early successional habitat and is also most abundant on coastal islands and the outer coastal plain.

Few nests were found during this survey. One ground dove nest was reported and later confirmed, however, at a residence on Edisto Beach on 25

June 1994. The nest, with a sitting bird, was in the top of a palmetto tree (*Sabal palmetto*) by a living room window.

George and Judy Halleron (pers. comm.) of Harbor Island near Beaufort reported ground doves repeatedly nesting under houses on pilings, and one nest was located against a house on steps. "At least three dove broods in one summer/fall season" were found under a neighbor's house.

Sprunt and Chamberlain (1949) reported ground doves at coastal locations in South Carolina nesting on the ground as well as in bushes and small trees, especially wax myrtle (*Myrica cerifera*). Nesting was prolonged and occurred between February and October. Will Post (pers. comm.) suggested that, as in the Caribbean, ground doves in South Carolina may have a bimodal breeding pattern, correlated with spring and fall rains. As with Mourning Doves (*Zenaida macroura*), ground doves could breed throughout the year. Nests have been found in Georgia as late as December and as early as January (Landers and Buckner 1979). In south-central Florida, Bowman and Woolfenden (1997) found that ground doves nested from late February through early October, but 50% of all clutches were completed from early April to mid-May, with a slight increase from late August to early September.

Two significant ground dove populations were reported during this survey. One was on the southern end of Sullivan's Island, where Arch McCallum (pers. comm.) banded 78 birds between 1992-1996. He estimated the population to be composed of approximately 30 pairs. The habitat consists of about 30 ha (75 ac) of accreted dune fields interspersed with dense clumps of wax myrtle. The other large population was at Harbor Island in Beaufort County, a private resort development where George and Judy Halleron (pers. comm.) estimated 25 pairs of ground doves.

Since 1996 we have received additional ground dove reports, including several clarifying its inland range. Two were seen on 31 July 1999 in southern Saluda County in peach orchard habitat; one at Cheraw State Park in eastern Chesterfield County on 13 September 1999, and two in northeastern Williamsburg County on 31 January 1999.

We recognize the biases associated with a survey of this type, especially those related to unequal temporal and spatial coverage. Fig. 2 could actually show the distribution of observers rather than ground doves. We also recognize that some observers could have misidentified Mourning Doves as ground doves. In most cases, however, we were able to communicate directly with observers and only used reports that we felt were reliable. Given funding limitations and the fact that traditional field methods, such as the Breeding Bird Survey (BBS), are unsuitable for sparsely distributed species (we note, for example, that the ground dove map in Price *et al.* (1995), based on the BBS, shows no birds even occurring in South Carolina), we feel that a more intensive survey for ground doves is impractical at this time. We suggest that, based on the literature and previous ground dove reports, the map shown in Fig. 2 is a fairly accurate representation of current ground dove distribution in South Carolina.

Without comparative unbiased data, the status of ground doves in South Carolina remains difficult to ascertain. However, most observers and the recent literature agree that the species has declined in South Carolina. Nationwide, the

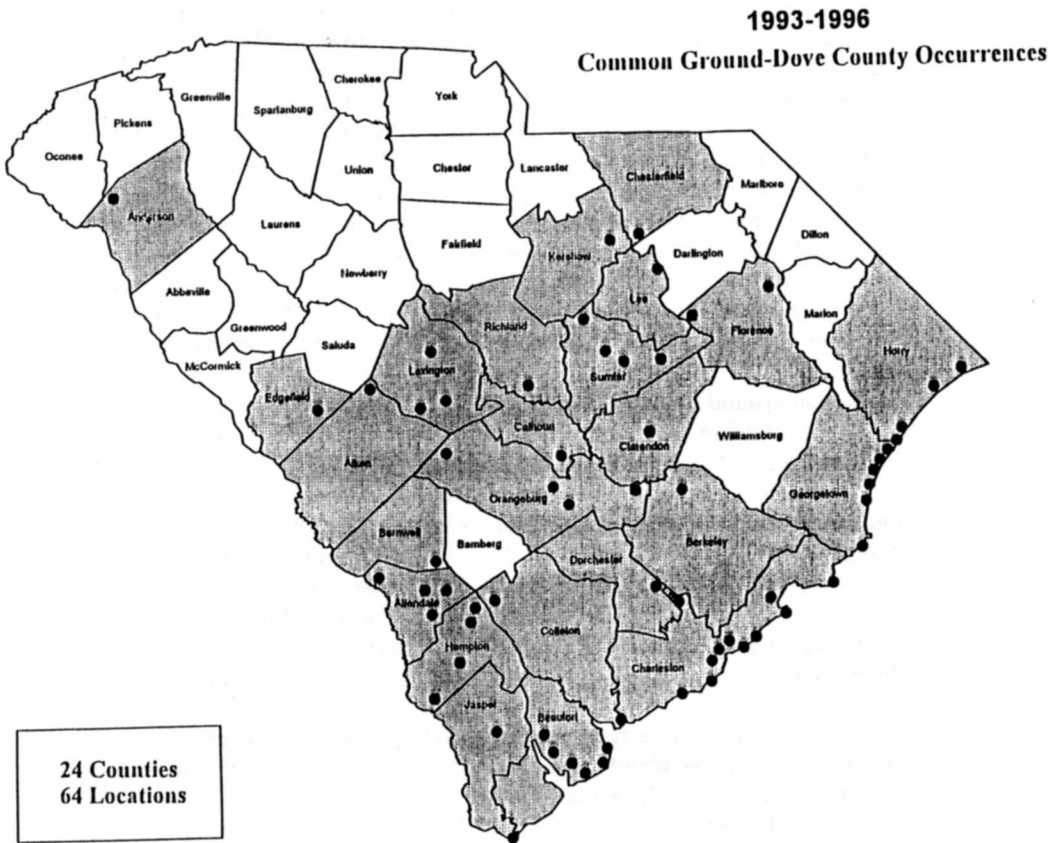


Fig. 2. Common Ground-Dove occurrences, South Carolina, 1993-1996. Each dot represents one or more birds

BBS shows a statistically significant population decline of 52% between 1966-1993, based on 199 survey routes (South Carolina routes had too few ground doves to be used in the analysis; Price *et al.* 1995). This decline has been evident throughout most of its range except for Texas. In contrast, a recent analysis of BBS trends between 1984-1993 shows a significant 41% increase, based on 163 routes (Price *et al.* 1995).

Ground dove populations in South Carolina, at or near the northernmost edge of the breeding range, may be especially susceptible to declines since peripheral bird populations are those at most risk during an overall decline (Wilcove and Terborgh 1984). We can only speculate at this time on the ground dove decline. As with most scrub and early-successional birds, habitat changes have undoubtedly played a large role. Scrub/shrub species like Northern Bobwhite (*Colinus virginianus*), Brown Thrasher (*Toxostoma rufum*), Loggerhead Shrike (*Lanius ludovicianus*), Golden-winged Warbler (*Vermivora chrysoptera*), Prairie Warbler (*Dendroica discolor*), Painted Bunting, Eastern Towhee (*Pipilo erythrophthalmus*), and Field Sparrow (*Spizella pusilla*) have all declined during the past 30 years, and few scrub birds are increasing (Price *et al.* 1995).

According to information provided by the US Department of Agriculture, National Agricultural Statistics Service, South Carolina had 2,014,800 ha (5,036,998 ac) in cropland in 1930, and the average farm size was 28 ha (70 ac); in 1997 cropland acreage had been halved to 985,127 ha (2,462,818 ac), while average farm size had nearly tripled to 78 ha (196 ac). The smaller farms of the first part of the 20th century provided optimum habitat for quail and other early successional wildlife, probably including ground doves. Much farmland since World War II has been abandoned and reverted to second-growth forest in South Carolina, creating unsuitable conditions for birds that need early successional habitat.

Habitat conditions on South Carolina's sea islands and beaches are now critical, since this area supports the largest number of ground birds in the state. Like inland locations, agriculture, primarily "truck crops," was historically dominant on many islands until resort development became prevalent 40 years ago. The impact of urban development on South Carolina's sea islands and its effects on ground doves is unclear at this time. As long as some scrubby and open conditions are maintained, ground doves could co-exist with development, especially since bird feeding is a popular activity at these locations and ground doves readily come to feeders. On the other hand, the prevalence of free-roaming cats that accompany development could have negative impacts on ground doves, which spend much time on the ground and may be especially vulnerable to predation. For example, one observer reported a ground dove killed by a cat during this survey. A recent news article brought to our attention the trapping, neutering, and releasing of feral cats at Hilton Head Island, an increasingly popular practice nationwide called "TNR" by the American Bird Conservancy (Linda Winter, pers. comm.).

Both of the largest ground dove populations reported during this survey came from developed sea islands, although this could be a bias reflective of the lack of observers from undeveloped islands. Sullivan's Island, just north of Charleston, has been developed for at least 200 years, while Harbor Island in

Beaufort County is a relatively new development. We did personally conduct multiple surveys at three undeveloped coastal islands, Bull (Cape Romain National Wildlife Refuge), Capers (South Carolina Department of Natural Resources), and South Island (Tom Yawkey Wildlife Center) and found only one bird, at South Island. Peter Range, a wildlife technician for three and a half years at Cape Romain National Wildlife Refuge, found no more than three ground doves on Bull Island during his tenure there and believed that none actually bred on the island (Range, pers. comm.). Yet in 1966 T.A. Beckett reported a "colony" of about 15 nesting pairs, with eggs and young, at Bull Island (Parnell 1966).

Aside from cat predation, Jones and Mirarchi (1988) suggested two other mortality factors that could be affecting ground dove numbers – incidental hunting pressure and fire ants. Ground doves can be easily mistaken for Mourning Doves by dove hunters, and they reported at least 12 ground doves shot on one Georgia Wildlife Management Area hunt in 1985. During our survey Cely examined a ground dove that had been shot on a dove hunt in Lexington County and received a reliable report of another. The extent of incidental shooting of ground doves in South Carolina, suspected of being low, remains unknown.

The red imported fire ant (*Solenopsis invicta*) has been implicated in wildlife declines for many years, especially for ground-nesting birds such as Northern Bobwhite (Johnson 1961). Although fire ants have been responsible for the death of nestling birds, their overall impact on wild bird populations remains controversial and unclear (*cf.* Allen *et al.* 1993, Brennan 1993).

Excessive cold weather is another factor that could affect ground doves. Wayne (1910) reported "great numbers" of ground doves destroyed by an intense cold wave in the Charleston area on 13-14 February 1899. Wayne noted that even ten years after this event, dove recovery was slow.

Could coastal ground doves be affected by hurricanes? The eye of Hurricane Hugo, a category 4 storm that struck South Carolina on 21 September 1989, crossed Bull Island with wind speeds of 225 kph (140 mph) and a storm water surge of 6 m (20 ft). Bull and neighboring Capers Island, as well as South Island 43 km (27 mi) up the coast, were severely damaged. Since the storm struck at night, roosting birds may have been vulnerable to storm surges. Perhaps ground doves are poor colonizers that, once eliminated from an area, either by hurricanes or over-development, are slow to reoccupy it. Colonization may be further limited since, based on their distribution, ground doves appear to exhibit colonial or semi-colonial behavior, and it may take a minimum "threshold" of individuals to establish a breeding site.

Conclusions

Since ground doves no longer appear to nest in North Carolina (Lee 1999), South Carolina now has the northernmost Common Ground-Dove population in the East. Due to land use changes and coastal development, the species has probably been declining in South Carolina for some years. We believe that ground doves should remain a "threatened" species in the state and that the species warrants careful monitoring and observation. Further investigation of its status at inland sites, including confirmation of breeding, is desirable.

Demographic studies, especially the nesting success of individual populations, should be a high priority. We know that ground doves have high reproductive potential and may raise three or four broods a year (Sprunt and Chamberlain 1949, Bowman and Woolfenden 1997). Barring excess mortality and widespread habitat loss, this species should be able to maintain itself as part of South Carolina's avifauna for the foreseeable future.

Carolina Bird Club members and other birders can assist ground dove conservation efforts in South Carolina by keeping notes of sightings, locations, dates, and behavior. Nesting records would be especially helpful. Such records could be submitted to "Briefs for the Files" in the *Chat* or forwarded to the authors at South Carolina Department of Natural Resources, Sandhills REC, P.O. Box 23205, Columbia, SC 29224; email: BGlvr@clmson.edu; JCely@clmson.edu.

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Literature Cited

- Allen, C R, R S Lutz, and S Demarais. 1993. What about fire ants and northern bobwhites: a comment. *Wildl. Soc. Bull.* 21:349-351.
- Brennan, L A. 1993. Fire ants and northern bobwhites: a real problem or a red herring? *Wildl. Soc. Bull.* 21:351-355.
- Bowman, R, and G E Woolfenden. 1997. Nesting chronology of the Common Ground-Dove in Florida and Texas. *J. Field Ornithol.* 68:580-589.
- Fuller, M R, and J A Mosher. 1981. Methods of detecting and counting raptors: a review. Pp. 235-246 in C J Ralph and J M Scott (eds.). *Estimating the number of terrestrial birds.* *Stud. Avian Biol.* 6.
- Johnson, A S. 1961. Antagonistic relationships between ants and wildlife with special reference to imported fire ants and bobwhite quail in the Southeast. *Proc. Annu. Conf. Southeast. Game and Fish Comm.* 15:88-107.
- Johnson, R R, B T Brown, L T Haight, and J M Simpson. 1981. Playback recordings as a special avian censusing technique. Pp. 68-75 in C.J. Ralph and J M Scott (eds.). *Estimating the number of terrestrial birds.* *Stud. Avian Biol.* 6.
- Jones, M T, and R E Mirarchi. 1988. Distribution and habitats of the Common Ground-Dove in Alabama. Final report W-44, 12 & 13 III-A, Alabama Game and Fish Division. 70 pp.
- Landers, J L, R J Hamilton, and T D Atkeson. 1977. Eastern ground doves in the Georgia piedmont. *Oriole* 42:10-12.
- Landers, J L, and J L Buckner. 1979. Ground dove use of young pine plantations. *Wilson Bull.* 91:467-468.
- Lee, D S. 1999. Extinction, extirpation, and range reduction of breeding birds in North Carolina: what can be learned? *Chat* 63:103-122.

- LeGrand, H E, Jr. 1991. Southern Atlantic coast region. *American Birds* 45:1109.
- Marion, W R, T E O'Meara, and D S Maehr. 1981. Use of playback recordings in sampling elusive or secretive birds. Pp. 81-85 *in* C.J. Ralph and J M Scott (eds.). *Estimating the numbers of terrestrial birds*. *Stud. Avian Biol.* 6.
- McNair, D B, and W Post. 1993. Supplement to status and distribution of South Carolina birds. *Charleston Museum Ornith. Contrib.* 8. 49 pp.
- Ogden, J C. 1989. Florida region. *American Birds* 43:305.
- Parnell, J F. 1966. Briefs for the files. *Chat* 30:91.
- Post, W, and S A Gauthreaux, Jr. 1989. Status and distribution of South Carolina birds. *Charleston Museum Contrib.* 18. 83 pp.
- Price, J, S Droege, and A Price. 1995. *The summer atlas of North American birds*. Academic Press, San Diego, CA. 364 pp.
- Rosenfield, R N, J Bielefeldt, R K Anderson, and W A Smith. 1985. Taped calls as an aid in locating Cooper's Hawk nests. *Wildlife Soc. Bull.* 13:62-63.
- Runde, D E, P D Southall, J A Hovis, R Sullivan, and R B Renken. 1990. Recent records and survey methods for the Black Rail in Florida. *Florida Field Nat.* 18:33-35.
- Sprunt, A, Jr, and E B Chamberlain. 1949. *South Carolina bird life*. Univ. South Carolina Press, Columbia, SC. 571 pp.
- Swift, B L, S R Orman, and J W Ozard. 1988. Response of Least Bitterns to tape-recorded calls. *Wilson Bull.* 100:496-499.
- Wayne, A T. 1910. *Birds of South Carolina*. Daggett Press, Charleston, SC. 254 pp.
- Wilcove, D S, and J W Terborgh. 1984. Patterns of population decline in birds. *American Birds* 38:10-13.

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