QUAIL HARVEST MANAGEMENT: SCALE AND STATE POLICY

MARKUS J. PETERSON, Ph.D., Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, TX 78744-4410

Abstract: Quail abundance in Texas fluctuates substantially among years and hunting success tends to mirror these fluctuations. There is no reason to believe that minor changes in the bag limit or season length, at the statewide or ecoregion scale, would substantially affect these fluctuations. There are differences in quail habitat suitability that appear at the spatial scale of ecoregions, portions of ecoregions, and individual pastures. The Texas Parks and Wildlife Department (TPWD) Commission and staff currently manage quail harvest only at the statewide scale. Fine-grained management of quail habitat and harvest is best left to those managing the land. Consequently, the TPWD Commission and staff give landowners/managers as much flexibility as possible to accomplish this task. The Department demonstrates its commitment to aiding land managers with this important task by providing technical bulletins and the services of technical guidance biologists.

Introduction

On 30 August 1995, Texas Parks and Wildlife Department (TPWD) Commission Chairman Lee Bass gave the Commission Regulations Committee 4 priority goals and several related "charges" for accomplishing them. Three of these goals were that the Regulatory Committee should (1) maximize hunting and fishing opportunity, (2) give landowners the greatest possible flexibility to manage habitat and wildlife resources on their land, and (3) greatly simplify the entire body of TPWD regulations. Three of Chairman Bass's charges are particularly relevant to a discussion of TPWD's policy regarding quail harvest management. First, Chairman Bass stated that "the Committee's highest priority shall be that of maximizing hunting and fishing opportunities within the confines of sound biological management." He also charged the Committee to "actively seek the maximum flexibility and opportunity to utilize resources under the regulatory guidelines of the U.S. Fish and Wildlife Service." Lastly, the Regulations Committee was to "enhance private landowner/land manager's abilities and incentives to manage habitat and wildlife resources." Consequentially, any TPWD policy regarding quail harvest management must reflect the Commission's, and hence the resource user's will, as outlined in these charges.

In this paper I discuss how the meaning of "quail harvest management" depends upon both the temporal and spatial scale under consideration. I briefly review selected aspects of quail population dynamics, present a brief history of quail abundance in Texas,

and discuss quail harvest trends to illustrate scale dependence. My discussion emphasizes northern bobwhite (*Colinus virginianus*), but also includes information on scaled quail (*Callipepla squamata*). Throughout this discussion I attempt to place TPWD's policy regarding quail harvest management within the context of the charges promulgated by Chairman Bass.

Quail Harvest Management in Time

It has long been recognized that northern bobwhite density (number per unit area) fluctuates considerably among years (Stoddard 1931:339-47, Rosene 1969: 194-7, Roseberry and Klimstra 1984). Roseberry and Klimstra (1984:151-91) even maintained that fluctuations observed in northern bobwhite numbers on their research area in southern Illinois were cyclic. A survey designed to detect such trends in Texas quail numbers was initiated in 1976 (Perez 1995). Quail population trends are currently determined from 158, 20-mile roadside survey routes randomly distributed in 7 Texas ecoregions. Biologists drive each route at 20-miles per hour in the early morning or late evening (during August), recording, among other things, the number of quail observed [see Perez (1995) for the development of this technique and details of its application]. The median number of quail counted along these routes fluctuated considerably among years (Fig. 1). Although not readily apparent when separately evaluating results from each ecoregion, there is apparent synchrony in the number of quail observed along survey routes among each of 6 ecoregions where data were consistently collected since 1976 (Figs. 2-3). This suggests that there may be factors acting at a sufficiently broad spatial scale to influence quail numbers over much of the state at roughly the same time.

In the past, many states, including Texas, attempted to use hunting regulations to decrease the number of bobwhite harvested during periods of low abundance and increase harvest during periods of high abundance. States reduced bag limits and/or season lengths when surveys indicated relatively low quail abundance, attempted to predict when high densities might occur, and increased bag limits and season lengths accordingly. This was a difficult task. For example, if fluctuations in Texas quail abundance among years are influenced by precipitation, as suggested by Giuliano and Lutz (1993), TPWD staff would find it difficult to accurately predict precipitation a year in advance so its influence could be considered when setting the next year's hunting regulations.

Fortunately, quail hunting is somewhat self-regulatory. Many biologists have argued that hunters spend fewer days hunting, and bag less quail per day, when hunting is "poor"; while hunting more frequently, and bagging more quail, when hunting is "good" (Roseberry and Klimstra 1984:149, Guthery 1986:152). In Texas, for example, the estimated number of people hunting northern bobwhite roughly parallels quail population trends derived from TPWD roadside counts (Fig. 4A). Similarly, the average number of bobwhites bagged by each hunter (Fig. 4C), and the total number bagged statewide during

a given year, also track relative quail abundance (Fig. 4D). Interestingly, Texas hunters typically spend about 3 days hunting bobwhite each season regardless of quail abundance (Fig. 4B). A similar relationship also holds for scaled quail hunting in Texas (Fig. 5).

Because the typical Texas quail hunter only hunts about 3 days and bags between 5 and 10 quail each season (Figs. 4-5), decreasing the daily bag limit by 2 or 3 birds, or the season length by a week, would have little influence on the number of quail surviving after the hunting season (at the ecoregion or statewide spatial scale). In essence, poor hunting markedly shortens the hunting season and restricts the bag limit. Consequently, TPWD staff no longer adjust the bag limit and season length annually in an attempt to offset normal fluctuations in quail abundance. This policy is in harmony with Chairman Bass's charge to maximize hunting opportunities and reduce regulatory complexity.

Hunting pressure can depress northern bobwhite abundance under certain circumstances, such as intense, long-duration hunting of isolated, low density populations (Roseberry and Klimstra 1984:189-50, Robinette and Doerr 1993). The TPWD Commission has regulatory authority to restrict quail harvest sufficiently to reverse declines in quail numbers caused by hunting, if deemed necessary. Such regulations could be invoked for relatively broad spatial extents if typical short-term fluctuations in quail abundance are replaced by long-term declines not associated with concomitant habitat loss.

Quail Harvest Management in Space

The median number of quail along survey routes is occasionally much higher in some Texas ecoregions, such as the South Texas Plains and Rolling Plains, than in others (Fig. 2). This does not imply, however, that every pasture within a given ecoregion produces identical quail densities. First, well-managed properties may produce higher densities than typically seen in the ecoregion, while poorly managed properties probably produce lower numbers. Secondly, not all locations within an ecoregion have identical potential as quail habitat, despite management efforts expended. It is beyond the scope of this paper to detail the characteristics of excellent quail habitat in each Texas ecoregion or discuss various management strategies employed to increase quail productivity. This information is readily available elsewhere [e.g., Jackson (No date), Lehmann 1984, Guthrey 1986]. For the purposes of this discussion, a sound quail management plan for a given ranch requires information about quail habitat and other land uses the owner/manager plans to implement. Data on quail abundance, and a harvest management plan, can contribute toward comprehensive quail management strategy [see Guthery (1986) for a practical discussion of quail management].

Currently, TPWD staff manages quail harvest at only the statewide scale [excepting specific Wildlife Management Areas (WMAs)]. Although the TPWD Commission has the authority to regulate quail harvest at the ecoregion or even the county level, there is no

reason to think that hunting pressure is currently decimating quail numbers at these spatial scales. In fact, quail harvest at the ecoregion and statewide scale appears to be largely self-regulatory (Figs. 4-5). For these reasons it is difficult to justify the substantially increased regulatory complexity necessary to implement different harvest management strategies on a county-by-county basis. Additionally, this would directly contradict Chairman Bass's charge to maximize hunter opportunity, increase latitude for wildlife management on private lands, and simplify hunting regulations.

Quail harvest regulations promulgated by TPWD allow for a maximum bag limit, and season length and timing that department biologists are confident will not damage the resource at a broad spatial scale. Conversely, fine grained management of quail harvest is best conducted at the scale of individual pastures. This can *only* be done by those managing the quail habitat in question. Although department biologists exert this control on some WMAs, they cannot do so on all private lands in Texas. Achieving specific management goals on private property is most effectively accomplished by landowner/managers themselves. Current Department regulations give property managers great flexibility to adjust season length and bag limits pursuant to their management goals. For example, they can decrease the number of hunter-days on their property, thus shortening the quail season. Property managers also can close the season entirely by allowing no hunting on their property. Similarly, managers can decrease the quail bag limit by making smaller bags a condition for hunting on their property. Many resources are available to aid landowners/managers with the task of managing wildlife on their lands. For example, the Texas Agricultural Extension Service has wildlife biologists trained for this purpose, TPWD has technical guidance biologists who can help design wildlife management plans, and private wildlife management consultants abound. Additionally, there are many useful publications detailing various aspects of quail management in Texas.

Summary

Quail abundance in Texas fluctuates considerably among years (Figs. 1-3) and hunting success tends to mirror these fluctuations (Figs. 4-5). Simply put, if quail are plentiful, quail hunting is "good." If quail abundance is low, hunting is "poor." There is no reason to believe that minor changes in the bag limit or season length, at the statewide or ecoregion scale, would substantially affect these fluctuations in quail density. This does not imply, however, that habitat loss due to urbanization, other changes in land use, or vegetative succession does not lead to long-term declines in quail density. If broad-scale, long-term declines in quail abundance occur due to hunting pressure, the TPWD Commission could institute regulations designed to restrict quail harvest sufficiently to reverse such declines.

Not all habitats in Texas are equally suited for quail. There are differences in suitability that appear at the spatial scale of ecoregions, portions of ecoregions, and

individual pastures. The TPWD Commission and staff currently manage quail harvest only at the statewide scale. Fine-grained management of quail habitat and harvest is best left to those managing the land. Therefore, the TPWD Commission and staff give landowners/managers as much flexibility as possible to accomplish this task. The Department demonstrates its commitment to aiding land managers with this important task by providing technical bulletins and the services of technical guidance biologists.

Literature Cited

Bass, L. M. 1995. Texas Parks and Wildlife Commission Regulations Committee charge. Texas Parks and Wildl. Comm., Austin. 2pp.

Giuliano, W. M., and R. S. Lutz. 1993. Quail and rain: what's the relationship? Pages 64-68 *in* K. E. Church and T. V. Dailey, eds. Quail III: national quail symposium. Kansas Dep. Wildl. and Parks, Pratt.

Guthrey, F. S. 1986. Beef, brush and bobwhites: quail management in cattle country. Caesar Kleberg Wildl. Res. Inst. Press, Kingsville, Tex. 182pp.

Jackson, A. S. No date. Quail Management Handbook. Bull. No. 48, Texas Parks and Wildl. Dep., Austin. 77pp.

Lehmann, V. W. 1984. Bobwhites in the Rio Grande plain of Texas. Texas A&M Univ. Press, College Station. 371pp.

Perez, R. M. 1995. Small game research and surveys: quail harvest regulations. Texas Parks and Wildl. Dep. Perf. Rep. W-126-R-3, Job No. 4.01, Austin. 12pp.

Robinette, C. R., and P. D. Doerr. 1993. Survival of northern bobwhite on hunted and nonhunted study areas in the North Carolina sandhills. Pages 74-78 *in* K. E. Church and T. V. Dailey, eds. Quail III: national quail symposium. Kansas Dep. Wildl. and Parks, Pratt.

Roseberry, J. L., and W. D. Klimstra. 1984. Population ecology of the bobwhite. Southern Illinois Univ. Press, Carbondale. 259pp.

Rosene, W. 1969. The bobwhite quail: its life and management. Rutgers Univ. Press, New Brunswich, N.J. 418pp.

Stoddard, H. L. 1931. The bobwhite quail: its habits, preservation and increase. Charles Scribner's Sons, New York. N.Y. 559pp.

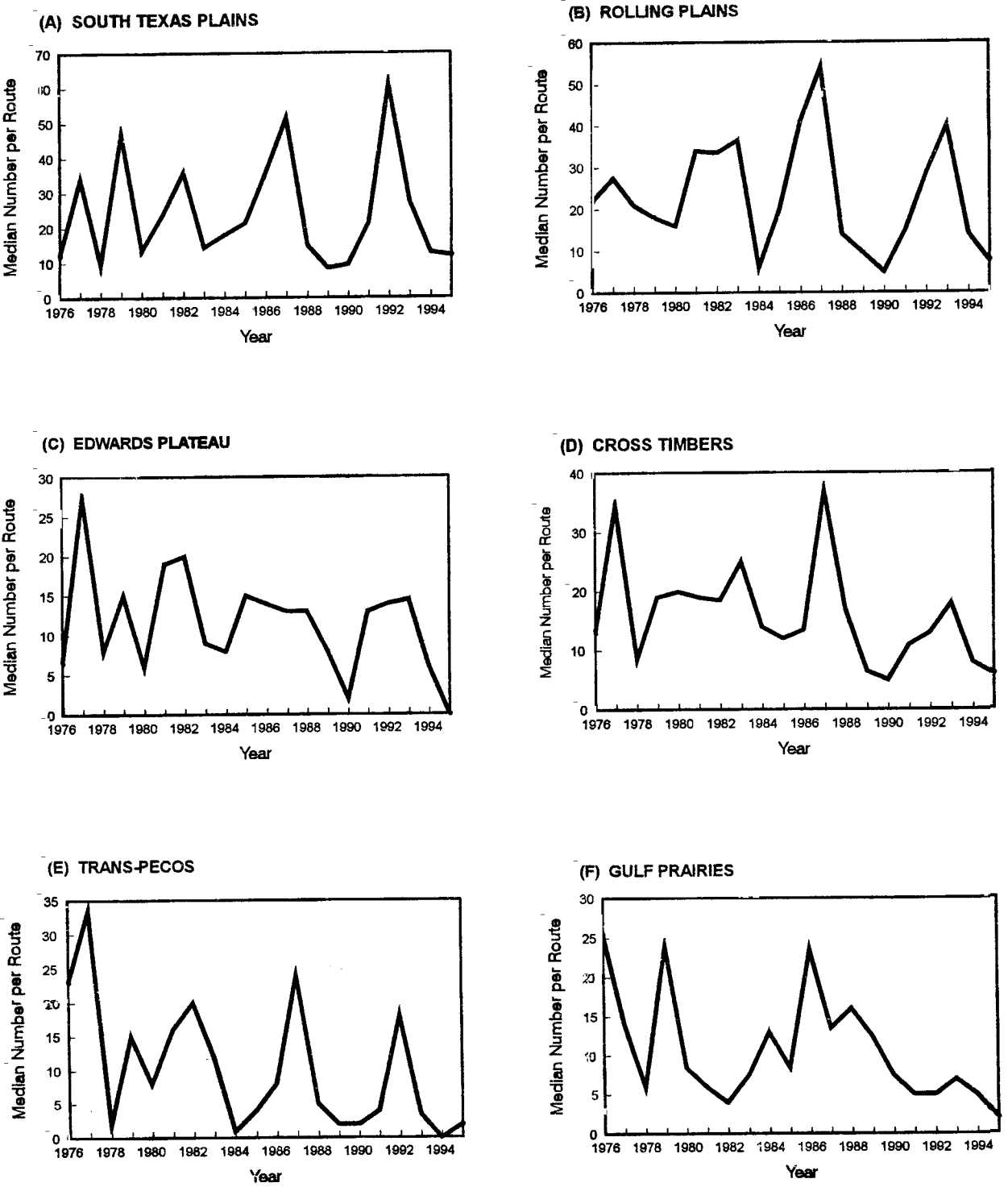

Fig. 3. Median number of northern bobwhite and scaled quail counted annually per 20-mile roadside survey route for each of 6 Texas ecoregions (A-F), 1976-95 (Perez 1995).

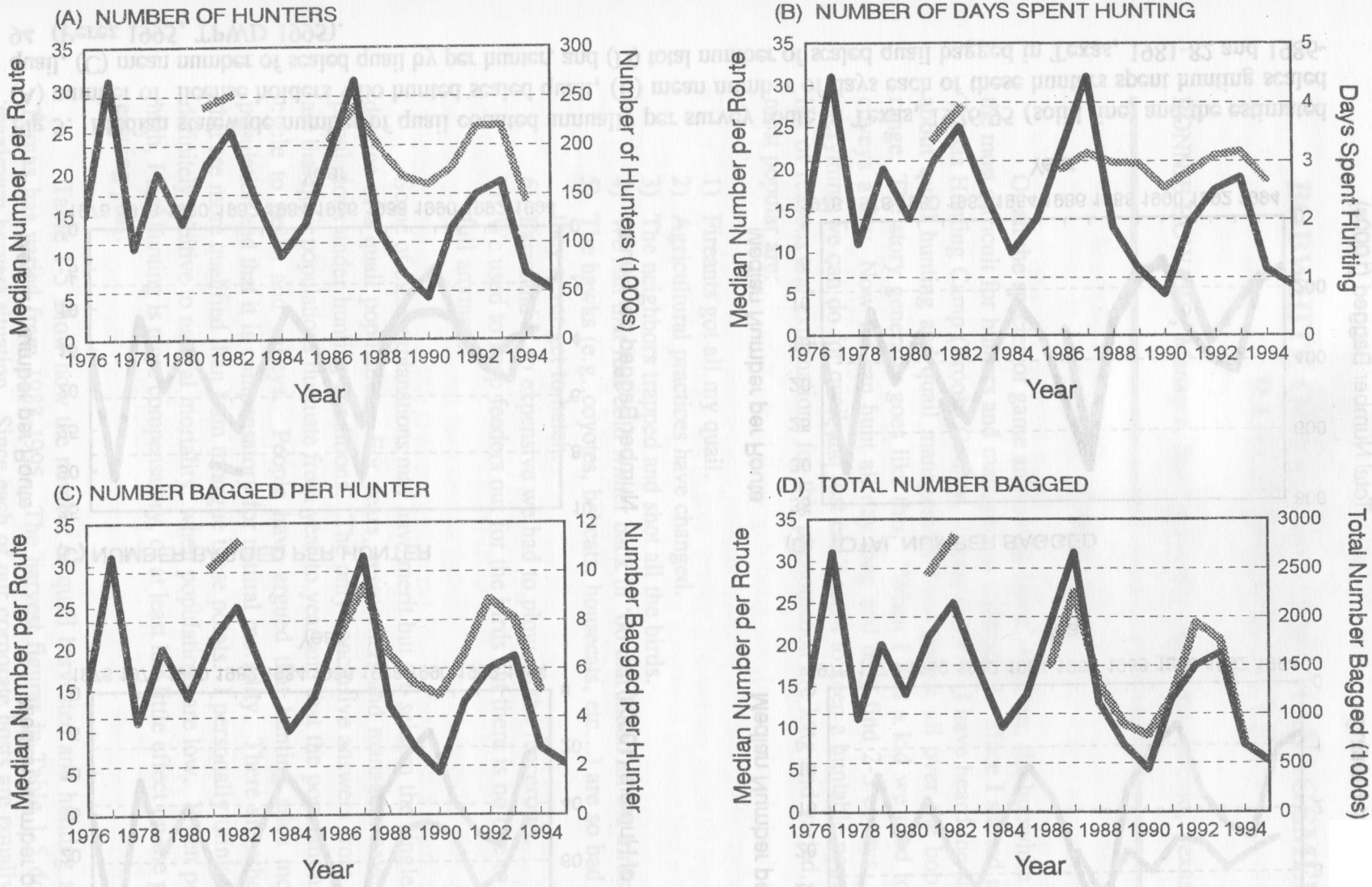

Fig. 4. Median statewide number of quail counted annually per survey route in Texas, 1976-95 (solid line) and the estimated (A) number of license holders who hunted northern bobwhite, (B) mean number of days each of these hunters spent hunting northern bobwhite, (C) mean number of northern bobwhite bagged per hunter, and (D) total number of northern bobwhite bagged in Texas, 1981-82 and 1986-94 (Perez 1995, TPWD 1995).

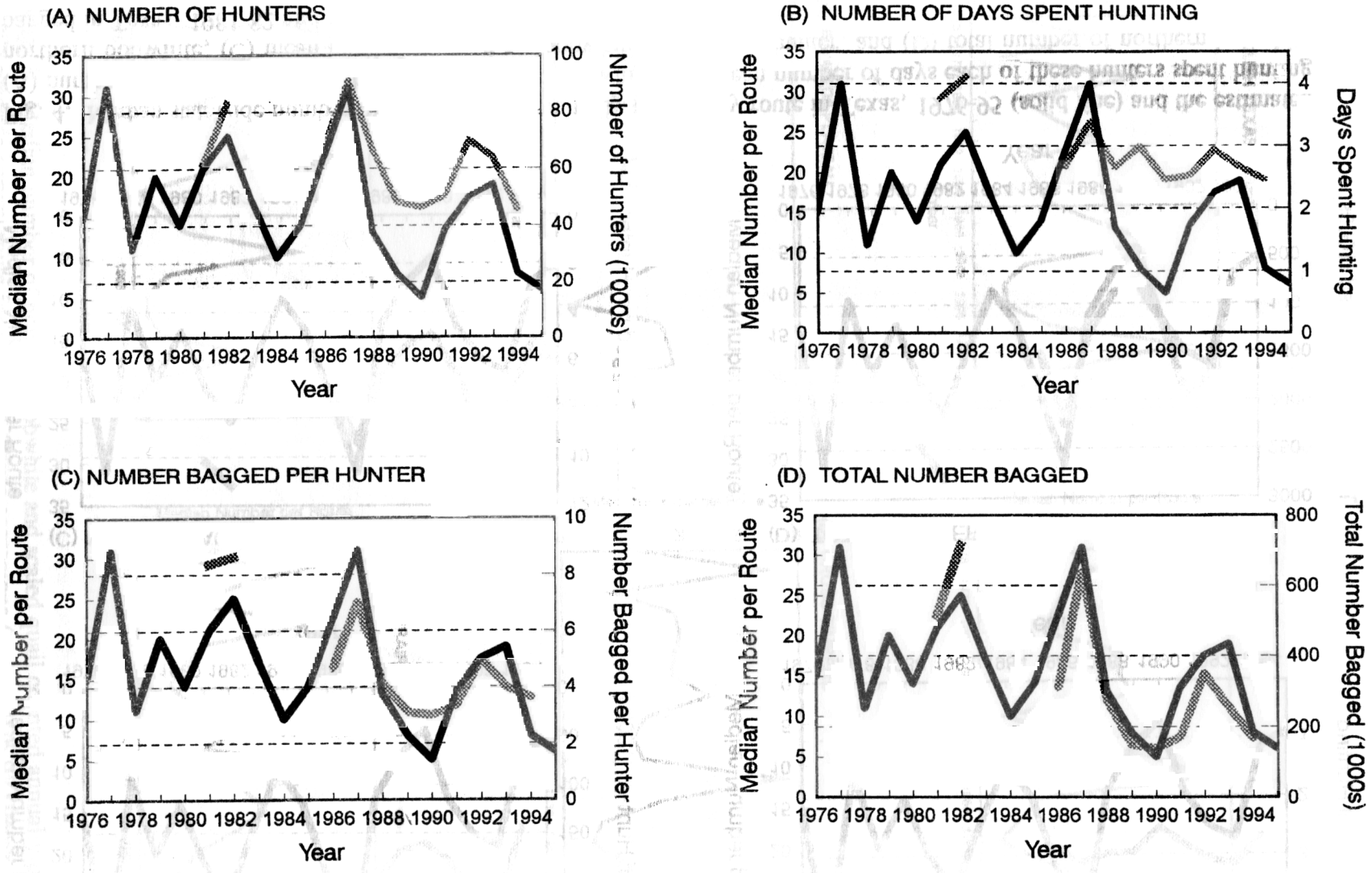

Fig 5. Median statewide number of quail counted annually per survey route in Texas, 1976-95 (solid line) and the estimated (A) number of license holders who hunted scaled quail, (B) mean number of days each of these hunters spent hunting scaled quail, (C) mean number of scaled quail by per hunter, and (D) total number of scaled quail bagged in Texas, 1981-82 and 1986-94 (Perez 1995, TPWD 1995).