Status of an endangered subspecies: the peninsular pronghorn at Baja California

Jorge Cancino*, Alfredo Ortega-Rubio* & José A. Sanchez-Pacheco†

*Centro de Investigaciones Biológicas del Noroeste S.C., Apdo. Postal No. 128, La Paz, 23000, BCS, México
†SEDESOL, Guerrero Negro, Domicilio Conocido, casa de La Fauna Guerrero Negro, B.C.S., México

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During November 1993, we traversed by ground and by air the Vizcaíno Desert, the last redoubt of the peninsular pronghorn (Antilocapra americana peninsularis). A total of 29 h of aerial census was performed and a total of 1900 km² were covered by ground, totalling 400 man hours of survey. At present the peninsular pronghorn population consists of 175 individuals, and inhabits an area of approximately 5000 km². Because of the impossibility of controlling its activities over such an area and because of the present small population size, we propose to manage part of the population in semi-captivity at Mesa de la Choya island, with the objective of assuring the survival of this subspecies, the most endangered mammal in Mexico.

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Introduction

The peninsular pronghorn (Antilocapra americana peninsularis) is the last pronghorn subspecies to be described (Nelson, 1912), and at present is the most endangered mammal subspecies in Mexico (IUCN, 1988; Diario Oficial, 1991). The original distribution of the peninsular pronghorn included nearly the whole Baja California peninsula (Hall, 1981). Human population increases, land development and poaching have been the main causes of its range reduction and decline in numbers (González-Romero et al., 1991). Nelson (1925) reported an estimated population of 500 peninsular pronghorns. In 1959, Leopold (1985), considering just two areas of distribution, the Vizcaíno Desert and San Felipe Bay, pointed out a serious decline, which was even more conspicuous by 1964 (Huey, 1964). In spite of pronghorn hunting being forbidden since 1922, their distribution is now restricted to the Vizcaíno Desert Biosphere Reserve (Diario Oficial, 1988). Even with a Recovery Plan from government agencies operating since the 1980s (SEDUE, 1986), according to Jaramillo (1989) and González-Romero et al. (1991) numbers have fallen to approximately 100 individuals. This paper reports the result of the November 1993
census, with the highest number counted since 1977. Information in censuses from 1977 to 1993 is summarized, and management of part of the population as an urgent measure for recovery of the subspecies is proposed.

Materials and methods

As part of the Federal and State activities for protection for this subspecies (SEDUE, 1986), aerial and terrestrial surveys were carried out during 15–20 November 1993 in the Vizcaino Desert (Fig. 1). Aerial survey was undertaken with a Cessna 182 plane with one pilot and two observers; we flew in west-east transects at an average height of 100 m, with 1000 m between transects. Terrestrial surveys were carried out by three ground teams. Each ground team included one vehicle with two observers, each equipped with 10 × 50 binoculars. Surveys began at 0600h, driving the vehicles from north to south at an average speed of 60 km h⁻¹, and ended each day at 1900h.

A total of 200 aerial transects was performed in 29 h of flight, covering an area of approximately 3000 km². The terrestrial survey covered 1900 km². Each observation of pronghorns was recorded with date, time of day, size group, sex and age composition, location on maps (1:100,000) (Crumpton, 1991) and direction of flight. Location from the airplane was obtained with a Global Positioning System instrument. Both ground and aerial records were plotted, contrasted, and analysed separately to avoid double counts.

Results and discussion

The total number of pronghorns observed were 117 and 151 individuals, for the ground and aerial surveys, respectively (Table 1). The ratios of males to females were 66:100 for the ground survey and 140:100 for the aerial survey. The total of both surveys, discounting double counts, was 175 individuals, with a male to female ratio of 85:100 (Table 1). The results for sex and age composition of the peninsular pronghorn population were 48 adult males, 56 adult females, and 71 undetermined (Fig. 2). It is important to emphasize that such a population size is the maximum recorded since 1925 (Nelson, 1925; Jaramillo, 1989; González-Romero et al., 1991).

Such a population size for the peninsular pronghorn enables us to propose some management practices which were not practicable with a smaller population size, since they involved the capture of several individuals. Because of poaching and the possibility of catastrophic changes, such as severe drought, in the factors that support the present population, we propose to capture 30 adult individuals: 12 males and 18 females. The capture of such individuals will be performed with two objectives: (i) to mark with radio-transmitters 10 male and 10 female individuals, and (ii) to maintain in semi-captivity two males and eight females at La Mesa de la Choya island (Fig. 1).

Marking individuals with radio-transmitters will be very helpful in following the seasonal movements of the population, a key factor in understanding the ecology and biology of the subspecies. Evidence exists that indicate important seasonal population movements, for instance when more than one census has been carried out in the same year, the summer figures are lower than during any other season (Jaramillo, 1989). Since the same zones were searched in those censuses at different seasons, the pronghorns must have moved to unknown places during the summer.

We are certain that a radio-tracking study would be useful in establishing the precise distribution and seasonal movements of the population. Experience and several options are already available (O’Gara & Yoakum, 1992).

Mesa de la Choya is an artificial island formed by the development of an evaporation
basin for salt production. Its area is approximately 10,000 ha, with controlled access. We can be sure that the main pronghorn population will be able to reproduce successfully, as the size of the population will still be above the minimum population previously reported (Jaramillo, 1989; Gonzalez-Romero et al., 1991). However, if the main population in freedom is exterminated by uncontrolled hunting, other human-related causes, or by any environmental catastrophe, the
Table 1. Results of some surveys on the Peninsular Pronghorn population at the Vizcaino Desert, Baja California Sur, Mexico, 1977–1993. (A=aerial census; S=ground survey)

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Survey type</th>
<th>Total counted</th>
<th>Male:female</th>
<th>Source*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977</td>
<td>Feb</td>
<td>S</td>
<td>83</td>
<td>97:100</td>
<td>(1)</td>
</tr>
<tr>
<td>1982</td>
<td>Jan</td>
<td>S</td>
<td>39</td>
<td>69:100</td>
<td>(1)</td>
</tr>
<tr>
<td>1988</td>
<td>Mar</td>
<td>S</td>
<td>48</td>
<td>65:100</td>
<td>(2)</td>
</tr>
<tr>
<td>1993</td>
<td>Nov</td>
<td>A/S</td>
<td>175</td>
<td>85:100</td>
<td>This paper</td>
</tr>
</tbody>
</table>

* (1) Jaramillo (1989); (2) Gonzalez-Romero et al. (1991).

Figure 2. Sex and age composition data of the Peninsular pronghorn population, November 1993. (□ = males; □ = females; □ = undetermined).

Survival of the endemic subspecies will be assured by the protected population on the Mesa de la Choya island.

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References


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