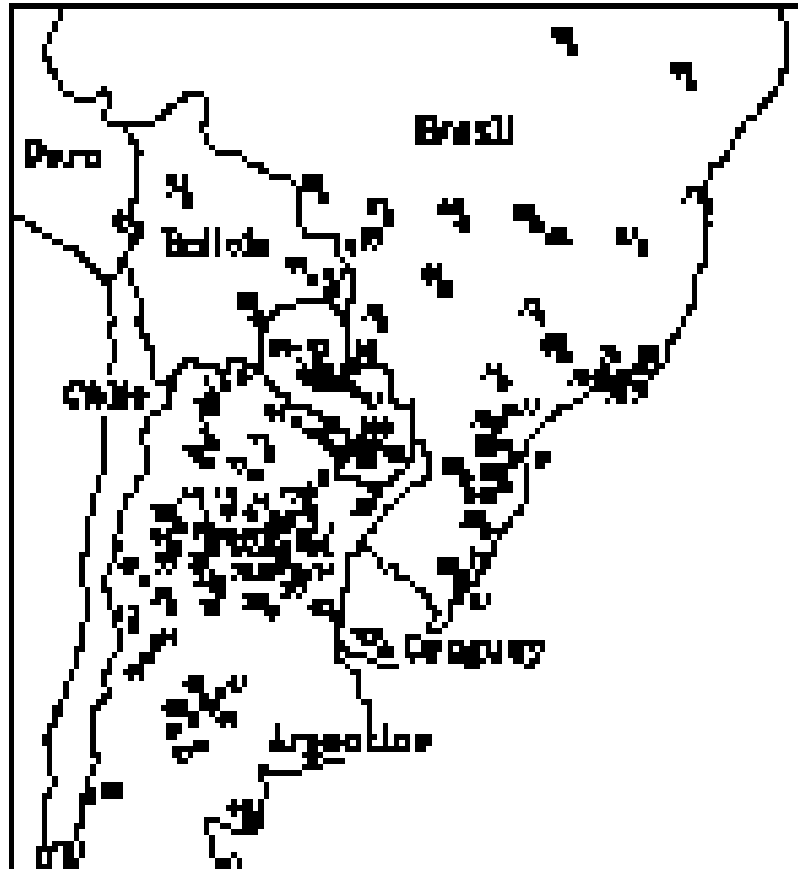


*This open-country raptor has been recorded over a large area of central and southern South America, but at such low densities that concrete evidence on its population status is lacking, as are good data on ecology and threats; it requires much study.*

**DISTRIBUTION** The Crowned Eagle occurs in the lowlands of south-central South America: Bolivia, Brazil, Paraguay, Argentina and Uruguay (Alvarez 1933, Hellmayr and Conover 1949, Barattini and Escalante 1958, Meyer de Schauensee 1982, Sibley and Monroe 1990; see Remarks 1). Unless otherwise stated, coordinates are taken from Paynter (1985, 1989) and Paynter and Traylor (1975, 1991), and records at individual localities are of single birds or pairs collected or observed.



**Argentina** Records by province (north to south) are: (*Jujuy*) “west of Jujuy” (no further details given) (Olrog 1959); Calilegua National Park<sup>1</sup> (23°35'S 64°54'W), undated (C. Bertonatti and A. Serret *per* J. C. Chebez *in litt.* 1992); (*Salta*) Orán<sup>2</sup>, 1970 (G. Hoy *per* J. C. Chebez *in litt.* 1992); Rivadavia<sup>3</sup>, July 1929 (Esteban 1953); Yatasto<sup>4</sup>, June 1985 (B. M. López Lanús *in litt.* 1991); (*Formosa*) north of Formosa city<sup>5</sup>, December 1987 (B. M. Whitney *in litt.* 1988); (*Chaco*) “Chaco”, undated (Fontana 1881); Charadai<sup>6</sup>, July 1986 (T. Narosky *in litt.* 1992); “Estina” (*sic*) (untraced), August 1890 (specimen in ROM); (*Misiones*) unspecified (Pereyra 1950); (*Catamarca*) unspecified (Olrog 1963); Recreo<sup>7</sup>, August 1982 (T. Narosky *in litt.* 1992); 30 km south-east of Recreo<sup>8</sup>, August 1982 (M. Nores *in litt.* 1992); El Médano<sup>9</sup> (29°19'S 65°44'W), undated (R. Miatello *per* M. Nores *in litt.* 1992); (*Tucumán*) río Vipos<sup>10</sup> (26°31'S 65°14'W), undated (Lillo 1902); Tucumán province (no further details given) (Freiberg 1943, Olrog 1963, Lucero 1983); (*Santiago del Estero*) in the eastern part of the province, 1934 (Giai 1952); Reserva Provincial Copo<sup>11</sup> (26°05'S 62°00'W in Nores *et al.* 1991), undated (S. M. Caziani *in litt.* 1992), February 1989 (D. A. Gómez *per* S. Krapovickas *in litt.* 1992) and recently (J. C. Chebez *in litt.* 1992); Tintina<sup>12</sup>, undated (specimen in MFA SF); Monte Redondo<sup>13</sup> (28°34'S 64°10'W), where three birds were observed in October 1980 (Nores *et al.* 1991); 15 km south of Icaño<sup>14</sup> (28°41'S 62°54'W), August 1902 (Ménégaux 1925); (*Santa Fe*) Los Amores<sup>15</sup> (28°06'S 59°59'W), July 1976 (T. Narosky *in litt.* 1992); west of Los Amores, November 1989; Ruta 13<sup>16</sup> (c.28°52'S 60°52'W); Vera department<sup>17</sup>, October 1989; Pozo Borrado<sup>18</sup> (c.28°52'S 61°37'W), Nueve de Julio department, July 1987 (approximate coordinates and data from M. R. de la Peña *in litt.* 1991, also for the following 14 localities); Tostado<sup>19</sup>, February 1945 (specimen in MACN; also Giai 1950); 10 km east of Tostado<sup>20</sup>, November 1989; Antonio Pini<sup>21</sup> (c.29°07'S 61°37'W), July 1987; c.10 km south of Antonio Pini, September 1988; Ruta 75<sup>22</sup> (c.29°07'S 61°22'W), Nueve de Julio department, October 1989; Fortín los Pozos<sup>23</sup> (c.29°07'S 61°07'W), Nueve de Julio department, where two adults (2 km apart) were observed on 11 February 1988; north-east of Monteriore<sup>24</sup>, Ruta 75 (c.29°37'S 61°52'W), November 1989; Calchaquí<sup>25</sup>, undated (specimen in MACN); Santurce<sup>26</sup> (c.30°07'S 61°07'W), San Cristóbal department, January 1988; San Cristóbal<sup>27</sup>, November 1974 and August 1978; Constanza<sup>28</sup> (c.30°52'S 61°22'W), San Cristóbal department, nesting in October 1979 and December 1982; Virginia (c.30°52'S 61°22'W), Castellanos department, August 1989; Ataliva<sup>29</sup> (30°59'S 61°27'W), July 1988; Cayastacito<sup>30</sup> (31°06'S 60°30'W), September 1974; 25 km west of Cayastá<sup>31</sup> (31°12'S 60°10'W), May 1989 (all, including approximate coordinates, from M. R. de la Peña *in litt.* 1991); Los Molles (untraced: Paynter 1985), September 1932 (Freiberg 1943); (*Corrientes*) “Corrientes province” (no further details given) (d'Orbigny 1835-1844); “Corrientes province”, where three birds were observed, 1986-1988 (Contreras 1989); near Puerto Valle<sup>32</sup> (27°37'S 56°26'W), 1973 (Chebez 1989); (*La Rioja*) El Cantadero<sup>33</sup> (29°11'S 66°44'W), July 1986 (coordinates and data from M. Nores *in litt.* 1992); Patquía<sup>34</sup>, undated (Anon. 1931); Guayapa<sup>35</sup> (30°07'S 66°57'W), September 1956 (Hayward 1967); (*Córdoba*) Monte de las Barrancas<sup>36</sup> (30°05'S 64°58'W), three undated observations (Nores *et al.* 1983); Copina<sup>37</sup> (31°34'W 64°42'W), undated (Nores *et al.* 1983); Valle de Calamuchita<sup>38</sup> (31°55'S 64°38'W), undated (Nores *et al.* 1983); General Roca department<sup>39</sup> (General Roca, at 32°44'S 61°55'W), September 1916 (specimen in MACN); (*San Juan*) Sierra de Villicum<sup>40</sup>, Albardón, June 1984 (de Lucca 1992); (*Entre Ríos*) unspecified (specimen in MACN); banks of the Gato<sup>41</sup> (probably arroyo la Punta del Gato at 32°57'S

58°36'W), north-west of Gualaguaychú (33°01'S 58°31'W), between July 1871 and February 1872 (Lee 1873); (*San Luis*) (locality not given), where a bird was captured in 1973 (D. Ochoa de Masramón *per* J. C. Chebez *in litt.* 1992), and a bird in Buenos Aires Zoo was captured in this province in 1986 (J. C. Chebez *in litt.* 1992); Sierra de las Quijadas<sup>42</sup> (32°33'S 67°07'W), September 1990 (Haene and Gil undated; also R. Clark *per* J. C. Chebez *in litt.* 1992); (*Mendoza*) Tupungato<sup>43</sup>, undated (one bird collected) (Reed 1916); Ñacuñán Ecological Reserve<sup>44</sup> (34°03'N 67°58'W) (from evidence provided in de Lucca 1992); San Rafael<sup>45</sup>, undated (Reed 1916); (*Buenos Aires*) near Carmen de Patagones<sup>46</sup>, where d'Orbigny (1835-1844) reported it during his visit to the area (7 January to 1 September 1829); (*Buenos Aires/Río Negro*) banks of the río Negro (d'Orbigny 1835-1844; see Remarks 2). (*La Pampa*) five sites in the area between Conhelo and El Odra<sup>47-51</sup>, marked on a map provided by J. R. Contreras (*in litt.* 1992); Parque Nacional Lihuel-Calel<sup>52</sup> (38°02'S 65°33'W), where three birds (an immature and two adults) were observed in October 1988 (M. Babarskas *in litt.* 1992); (*Río Negro*) “río Negro” (Sclater and Hudson 1888-1889), undated (see Remarks 3); (*Neuquén*) Lanín National Park<sup>53</sup> (39°55'S 71°25'W), accidental (J. C. Chebez *in litt.* 1992). A bird in BMNH is labelled as “River Negro, Patagonia”. Temminck (1838) reported the species on the banks of the río de la Plata, but this cannot be attributed to any particular province

**Bolivia** The species's occurrence in the country is poorly documented, most sources failing to be more specific than “eastern Bolivia” (e.g. Hellmayr and Conover 1949, Brown and Amadon 1968, Blake 1977, Mayr and Cottrell 1979, Meyer de Schauensee 1982, Remsen and Traylor 1989, Sibley and Monroe 1990), and a bird in BMNH collected before 1888 is simply labelled “Bolivia”.

*Beni* The only known record appears to be from Beni Biological Station<sup>54</sup> (14°38'S 66°18'W), presumably in 1989 (see Rocha O. 1990c).

*Santa Cruz* The species was listed for the province by West (1979) but the only records appear to be one from the northern chaco (somewhere along the Corumbá–Santa Cruz railway<sup>55</sup>) (Reichholf 1974), one in a remnant chaco grassland (surrounded by chaco woodland) at Perforación<sup>56</sup>, 20°03'S 62°38'W, June 1990 (TAP), and one in grassland at the edge of dry forest at Guayacanes<sup>57</sup>, 18°49'S 58°42'W, June 1991 (TAP, including coordinates for both the preceding).

**Brazil** Records (see Remarks 4) within states (roughly from north to south) are from:

*Maranhão* east of Balsas<sup>58</sup>, near Buritirana in the Serra do Itapicuru, where a pair together with an immature bird were observed sometime between 22 June and 24 July 1985 (Roth 1985);

*Bahia* “north-western Bahia”, where a pair was observed in April-June 1986 (Roth 1986); riacho da Melância<sup>59</sup> (09°08'S 39°54'W), Fazenda Concórdia, July 1990 (F. B. Pontual *in litt.* 1992);

*Mato Grosso* near Uirapuru<sup>60</sup>, July 1987 (C. Yamashita *in litt.* 1987); Chapada<sup>61</sup> (= Chapada dos Guimarães), October 1883 (Allen 1891-1893; specimen in AMNH), with a pair in grassy cerrado there in September 1991 (TAP); reportedly Descalvados<sup>62</sup> (= Descalvado; 16°45'S 57°42'W) (Stone and Roberts 1934); reportedly on the río Xingu, where it was well known among the Indians (Stone and Roberts 1934; also Hellmayr and Conover 1949); rio das Mortes or rio Xingu, where the species was recorded once (February to November 1970: Reichholf 1974); “Mato Grosso” (locality not given), April 1962 (Aguirre and Aldrichi 1983);

*Goiás* Araguay<sup>63</sup> (= Registro do Araguaia), October 1823 (von Pelzeln 1868-1871; also Paynter and Traylor 1991); Emas National Park<sup>64</sup>, July 1981 (F. B. Pontual *in litt.* 1992) and August 1991 (J. F. Pacheco verbally 1991);

*Distrito Federal* Brasília National Park<sup>65</sup>, November 1978, January 1987 (pair observed twice: C. Yamashita *in litt.* 1987), and November 1991 (P. G. Gadd *in litt.* 1991); Brasília<sup>66</sup>, April 1963 (specimen in MNRJ);

*Minas Gerais* Chapada de São Domingos<sup>67</sup>, Carbonita, July 1988 (G. T. de Mattos *in litt.* 1991); Caldas<sup>68</sup>, 1855 (Gyldenstolpe 1927);

*Rio de Janeiro* unspecified (specimen in MNRJ); Nova Friburgo<sup>69</sup>, July 1987, when three birds were seen (Luigi 1988), one evidently being collected (specimen in MNRJ); Várzea<sup>70</sup>, Resende, April 1988 (J. F. Pacheco verbally 1988); Serra do Tinguá<sup>71</sup> (22°36'S 43°27'W in Scott and Brooke 1985), where an adult and an immature (apparently on migration) were observed on 29 November 1980 (Scott and Brooke 1985);

## Threatened birds of the Americas

*São Paulo* Paraná<sup>72</sup> (= Porto do rio Paraná; c.19°59'S 47°46'W), April 1823 (von Pelzeln 1868-1871; also Paynter and Traylor 1991); Pontal<sup>73</sup>, June 1991 (J. F. Pacheco verbally 1991); Chavantes<sup>74</sup>, 1927 (Pinto 1938); Fazenda Albion<sup>75</sup>, Bananal municipality, December 1989 (F. B. Pontual *in litt.* 1992); Serra da Bocaina<sup>76</sup> (22°45'S 44°45'W), where a bird (apparently of this species) was shot by a farmer in 1987 and another was observed in June 1988 (F. B. Pontual *in litt.* 1992); Ytararé<sup>77</sup> (= Itararé), August 1820 (von Pelzeln 1868-1871);

*Mato Grosso do Sul* by the road between Aquidauana and Miranda<sup>78</sup>, February 1987 (C. Yamashita *in litt.* 1987); in cerrado north of Campo Grande, 1988, where a pair was reportedly nesting (*per* TAP);

*Paraná* Castro<sup>79</sup>, June 1907 (Pinto 1938); Fazenda do Pitangui<sup>80</sup> (= Pitangui, untraced but between Curitiba and Castro), December 1820 (von Pelzeln 1868-1871; also Paynter and Traylor 1991);

*Santa Catarina* Corupá<sup>81</sup>, undated (specimen in MSC: L. A. R. Bege *in litt.* 1991); Videira municipality, August 1984 (Albuquerque 1986; P. Scherer Neto *in litt.* 1992); Limoeiro (untraced), Agua Doce municipality<sup>82</sup>, 1985 (Bornschein and Straube 1991); Lontras<sup>83</sup>, undated (Sick *et al.* 1981, L. A. R. Bege *in litt.* 1991); Lages<sup>84</sup>, 1990 (Bornschein and Straube 1991);

*Rio Grande do Sul* unspecified (specimen in MNRJ); alongside the road 5 km north of São Francisco de Paula<sup>85</sup>, March 1978 (Belton 1984-1985); São Lourenço do Sul<sup>86</sup>, undated (von Ihering 1898); São José do Norte<sup>87</sup>, some time between June and August 1914 (Gliesch 1930).

**Paraguay** The following records fall to the west (Chaco) and east (Región Oriental) of the río Paraguay:

*Chaco* 200 km west of Puerto Casado<sup>88</sup>, this being at 22°20'S 57°55'W, Alto Paraguay department, September 1939 (specimen in FMNH); 190 km west of Puerto Casado<sup>89</sup>, June 1940 (two specimens in FMNH); General Díaz<sup>90</sup> (see Remarks 5), June 1945 (specimen in FMNH); Lichtenau<sup>91</sup> (c.22°50'S 59°40'W), Presidente Hayes, April 1963 (Steinbacher 1968); Colonia Neuland<sup>92</sup> (c.22°38'S 60°09'W, read from DSGM 1988), Boquerón, in 1988 or 1989 (Neris and Colman 1991); Ruta Trans-Chaco (km 187)<sup>93</sup>, Presidente Hayes, September 1989 (J. Escobar *in litt.* 1991); near Estancia San José<sup>94</sup> near río Confuso, c.15 km south-west of km 75 on the Ruta Trans-Chaco), July 1989 (AMN); “Gran Chaco”, sometime between February and November 1970 (Reichholf 1974); Fortín Page<sup>95</sup> (c.24°47'S 58°45'W), Presidente Hayes, 12 July 1890 (Kerr 1892: see Remarks 6);

*Región Oriental* Near Estancia Centurión<sup>96</sup> (= Centurión, c.22°15'S 57°35'W), Concepción<sup>97</sup>, May 1989 (F. E. Hayes *in litt.* 1991); Villa Rica<sup>98</sup> (= Villarrica, Guairá, February 1907 (specimen in BMNH); Cerro Acahay<sup>99</sup> (25°52'S 57°35'W), Paraguari, undated (Acevedo *et al.* 1990, whence also coordinates); “Alto Paraná”<sup>100</sup> region, undated (Bertoni 1914).

**Uruguay** Kothe (1912) reported two specimens from Montevideo, but this obscure record was called in question by Hellmayr and Conover (1949); hence presumably the scepticism of Cuello and Gerzenstein (1962) and Gore and Gepp (1978) over the occurrence of the species in the country. The listing of the species for Uruguay by Steullet and Deautier (1935-1946) appears to have been guesswork based on the proximity of localities in neighbouring countries (R. Escalante *in litt.* 1991), and presumably Pinto (1938) and Freiberg (1943) simply followed suit. However, Barattini and Escalante (1958) postulated the occurrence of the species in Uruguay based on a drawing by D. A. Larrañaga, who died in 1848. Moreover, an apparently overlooked record for the country is that of Alvarez (1933), who reported a bird shot somewhere by the río Santa Lucía Grande<sup>101</sup> on an ungiven date, and who added various notes about its status and habits (i.e. implying that it occurred more widely; see Population).

**POPULATION** Although the Crowned Eagle's range is relatively large, it appears generally to be rare and very difficult to find throughout (see Remarks 7); TAP has spent dozens of hours in campo and cerrado habitat in Brazil and Bolivia, yet has found the species on very few occasions. While it is true that this is a naturally low-density raptor, and on the basis of the information assembled here there is little clear evidence of a decline, trends are always very difficult to detect in low-density populations and it seems very likely that a loss of numbers has occurred.

**Argentina** The species has been considered “uncommon to rare” in eastern Formosa (B. M. Whitney *in litt.* 1988), “scarce” in Tucumán, where it “probably nests” (Lucero 1983), “rare” (Giacomelli 1923) and

“scarce” (Hayward 1967) in La Rioja, “scarce” in Córdoba (Nores *et al.* 1983) and in Santa Fe (de la Peña 1977a), and the data presented by Chebez (1989) and Contreras (1989) suggest that it is rare in Corrientes, whence there are only four records. Narosky and Yzurieta (1987) included the species in the category “scarce or difficult to see”.

**Bolivia** Apart from the few records in Distribution, the species's status is practically unknown.

**Brazil** The judgement that the Crowned Eagle is rare (Albuquerque 1986) is fully justified by the notable paucity of records from its extensive range in the country, most of them referring to old specimens (see Distribution).

**Paraguay** De Azara (1802-1805) commented that there are “some” in Paraguay, and Kerr (1892) reported the species to be rare in the lower Pilcomayo area. J. Escobar *in litt.* (1991) considered it “occasional” in the chaco, and AMN only observed it once in the humid chaco, despite having spent several months in both dry and humid chaco in 1989 and 1990.

**Uruguay** The only information about the species's status in the country is that given by Alvarez (1933), who reported it to be fairly scarce. The species has not certainly been recorded for at least the last 60 years, and R. Escalante (*in litt.* 1991) regarded it as possibly extinct in the country.

**ECOLOGY** The Crowned Eagle is more often found in the lowlands in semi-open seasonal dry country (palm savanna, thin woodland, steppes with bushes), chaco and cerrado in the lowlands east of the Andes, although it sometimes occurs in moderate altitude hill ranges of western Argentina and south-eastern Brazil (von Pelzeln 1868-1871, Olrog 1959, Hayward 1967, Brown and Amadon 1968, Reichholf 1974, Blake 1977, Nores *et al.* 1983, Narosky and Yzurieta 1987, Chebez 1989; also Distribution). Birds observed in the lowland humid chaco in Argentina and Paraguay were in open, periodically flooded grassland areas with scattered palms *Copernicia alba* (Kerr 1892, B. M. Whitney *in litt.* 1988, AMN); however, an immature bird observed in Bahia was found in caatinga (F. B. Pontual *in litt.* 1992).

Food has been reported to consist of birds (e.g. tinamous), mammals (including skunks *Conepatus* sp., armadillos, weasels, rodents), reptiles and carrion (sheep, armadillos) (de Azara 1802-1805, Temminck 1838, Lee 1873, Sclater and Hudson 1888-1889, Ménégau 1925, Alvarez 1933, Gai 1950, Brown and Amadon 1968, de la Peña 1977a, Sick 1985, Canevari *et al.* 1991, F. E. Hayes *in litt.* 1991). Alvarez (1933) examined the stomach of a shot bird which contained a chick, and he also mentioned lambs and poultry among its prey items.

A nest placed on the communal nest of Monk Parakeets *Myiopsitta monachus* at 15 m in a large eucalyptus tree held one egg on 28 October 1979 and a chick on 5 December 1982 (de la Peña 1977a, M. R. de la Peña *in litt.* 1991). The nest is placed on trees or in ravines and generally consists of a large platform in which a single egg is laid (de la Peña 1985, Canevari *et al.* 1991).

The Crowned Eagle has been described as partially crepuscular (Olrog 1959, Brown and Amadon 1968, Sick 1985) and tame, reluctant to fly off when approached (Brown and Amadon 1968). Its movements are poorly known: it is considered sedentary in Argentina (Dabbene 1910, Narosky and Yzurieta 1987), but the map in Narosky and Yzurieta (1987) shows an area of “low density” towards its southern range (i.e. Río Negro and southern Buenos Aires, where nineteenth-century records exist; see Distribution), and Scott and Brooke (1985) reported two birds (apparently on migration) outside its previously known range on 29 November 1980 in eastern Brazil (see Distribution).

**THREATS** The causes of the Crowned Eagle's apparent rarity in Bolivia remain unknown. In Brazil, the species suffers from hunting pressure (C. Yamashita *in litt.* 1987) and probably also from the effects of habitat clearance both in central and southern Brazil, cerrado being replaced by soy crops in the former (C. Yamashita *in litt.* 1986) and natural grasslands being developed for agriculture and afforestation (with exotic trees) in the latter (Albuquerque 1986); see particularly Threats under Lesser Nuthur *Nothura minor*. In Paraguay, although appropriate habitat in the chaco is still in fairly good condition, increasing colonization (farming, cattle-raising) is rapidly destroying wooded areas and natural grasslands, and hunting, although prohibited in Paraguay, is a common practice, with large raptors and storks being



especially targeted (AMN). On the rio Xingu, Mato Grosso, Brazil, in the 1930s the species was often found to be kept alive by natives for whom it had a religious significance (Stone and Roberts 1934).

**MEASURES TAKEN** The species is protected in Argentina (MAG 1954), and in both Brazil and Paraguay it has been included on the national lists of threatened fauna (Acevedo *et al.* 1990, Bernardes *et al.* 1990). Records from protected areas are few; those from Emas and Brasília National Parks and Beni Biosphere Reserve appear to be the most encouraging.

**MEASURES PROPOSED** This species presents a major challenge to conservation, owing to its very low density or at least very patchy distribution. The first requirement must be to identify one or more general areas in which some reasonable population exists; these will then need close study to determine ecological constraints, breeding success, migratory patterns and other factors relevant to the development and implementation of a long-term conservation strategy (which may well need to be international in scope). It may be appropriate to integrate the first task, that of identifying key areas for the species, with a wider programme of survey that targets other, if smaller, bird species also in difficulty in the same general region and habitat.

**REMARKS** (1) Other countries or regions have been erroneously included within the range of the species, doubtless because it was considered conspecific with the Solitary Eagle *Harpyhaliaetus solitarius* (see, e.g., Hellmayr 1932, Hellmayr and Conover 1949). (2) From d'Orbigny (1835-1844, 1843) it is not clear if he observed the species on both sides of the river (Buenos Aires and Río Negro provinces). (3) Hudson (1872), when referring to the species, commented: "... my observations have been confined to the valley of the río Negro and to the adjacent high grounds..." (also Paynter 1985). (4) Untraced localities are: 12 km south of "Geomõ" (*sic*), where a female was taken on 27 August 1902 and 15 km south of the same locality, where a male was collected on 25 August 1902 (specimens in MNHN). (5) It is not clear whether the collector was at Fortín General Díaz (22°07'S 58°40'W) or at Laguna General Díaz (22°18'S 59°01'W), the former in Alto Paraguay and the latter in Presidente Hayes department (but relatively close to each other) (see Paynter 1989). (6) Evidence in Kerr (1892) suggests that a female specimen in BMNH labelled "Pilcomayo" and simply dated 12 June may well be the same bird. (7) The species's habitat preferences and its easily detected presence (see Ecology) suggest that it is indeed rare even though large areas of its distribution still remain well preserved (e.g. the Argentinian, Paraguayan and Bolivian chaco).