9. Information Sheet on Ramsar Wetlands

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

NOTE: It is important that you read the accompanying *Explanatory Note and Guidelines* document before completing this form.

1. Date this sheet was completed/updated:
September 1997

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

2. Country: Russian Federation

3. Name of wetland: Lake Manych-Gudilo

4. Geographical coordinates: 44°36'N, 42°50'E

5. Altitude: 8 m a.s.l.

6. Area: 112,600 ha, including 85,000 ha in Rostov Region and 27,600 ha in Republic of Kalmykia

7. Overview: This wetland comprises a chain of salt lakes with numerous islands and shallows located in a deep depression. Grass and herb associations are characteristic for the vegetation of islands. Zooplankton and benthos feature very high productivity. The site is an important staging area for migrating populations of waterbirds, in particular geese (*Anser albifrons, Branta ruficollis, Anser erythropus* and *Anser anser*). It is also an important breeding area for a number of colonial shore birds.

8. Wetland Type (please circle the applicable codes for wetland types as listed in Annex I of the *Explanatory Note and Guidelines* document.)

marine-coastal: A · B · C · D · E · F · G · H · I · J · K

inland: L · M · N · O · P · (Q) · R · Sp · Ss · Tp · Ts
U · Va · Vt · W · Xf · Xp · Y · Zg · Zk

man-made: 1 · 2 · 3 · 4 · 5 · 6 · 7 · 8 · 9

Please now rank these wetland types by listing them from the most to the least dominant: Q

9. Ramsar Criteria: (please circle the applicable criteria; see point 12, next page.)

(1a) · 1b · 1c · (1d) [3] 2a · (2b) · 2c · 2d [3] (3a) · (3b) · (3c) [3] 4a · 4b

Please specify the most significant criterion applicable to the site: 1d, 2b

10. Map of site included? Please tick *yes* ✓ -or- *no*
(Please refer to the *Explanatory Note and Guidelines* document for information regarding desirable map traits).

11. Name and address of the compiler of this form: B.A.Kazakov: Rostov University. 105 Engels Street, Rostov-on-Don 344711, Russia.
V.G. Krivenko: Research Institute for Nature Conservation. Znamenskoye-Sadki, Moscow 113628, Russia
P.K.Mytko: 239 Gorky Street, Rostov-on-Don 344022, Russia

12. Justification of the criteria selected under point 9, on previous page: 1d - the site provides an example of a unique wetland, which plays substantial hydrological and ecological role in the region; 2b - the wetland supports populations of rare and threatened species.

13. General location: The site is located in two administrative regions of the Russian Federation: its western portion, the Proletarskoye Reservoir, is situated in Rostov Region, and the eastern part, Lake Manych-Gudilo within the Chernye Zemli Nature Reserve, in the Republic of Kalmykia, 70-90 km west and southwest of the city of Elista (capital of Kalmykia). The Proletarskaya Dam, which separates the Proletarskoye and Veselovskoye Reservoirs, forms the western boundary of the site. The northwestern boundary extends along the shore of the Proletarskoye reservoir at a distance of 6-10 km from the shore, embracing lakes Soljonoye and Kazanka. Further east, the boundary crosses the border with Kalmykia and follows the shoreline of Lake Manych-Gudilo. The southern boundary follows the shore of the water bodies at a distance of one to six km.

14. Physical features:

Relief, hydrography and hydrological regime

The Manych depression, located between the high right bank of the Volga River and the Ergeni highlands in the north and the Stavropol highlands in the south, is an ancient channel about 500 km long which used to connect the Azov and Caspian lowlands. The alternation of transgressions and regressions of the Black Sea and the Caspian Sea, which were connected through the Manych channel over prolonged periods, has resulted in a complicated structure of relief in the Manych area, particularly in the great number of straits and islands. The geomorphology of the Manych valley is considered to have been formed during the Late Pleistocene transgression.

Clays make up the banks of water bodies and islands. Soil cover is presented by the south chernozems (black earth).

The hydrological regime of wetlands in this region is subject to cyclical changes. Due to the low depths and flattered surface of the valley, long-term changes in inundation of wetlands determine the hydrological situation for the whole region. In years of high water level, the Manych complex represents one large water body characterized by a changing salinity (from freshwater to hypersaline zones). In years of low inundation, the complex turns into a chain of separate or partly connected salt lakes which sometimes dry out.

In the last 30 years, despite the construction of dams along the Manych River, the lakes of Manych-Gudilo and East Manych have still shown large fluctuations in salinity and inundation caused by both natural and man-induced factors. Generally, fluctuations in water level reach 1.5 m over a period of few years. In the eastern, quite narrow and shallow part of the Manych, this figure runs to 2.0 m due to the influence of strong winds. Seasonal fluctuations in water level is not more than 0.5-0.6 m. The content of salts in the waters increases from west to east and gets its maximum value (17-30 g/l) in the central part of Lake East Manych, then again decreases eastward.

Presently, the width of Lake Manych-Gudilo ranges from 1.5-2 to 7-10 km. In the deepest central part of Manych-Gudilo Lake, the depth varies from 5 to 8 m, but for the most part the waters are shallow: 0.5 to 2 m deep. Islands vary in area from several to several hundred hectares. In periods of decreasing inundation, the number of these flat islands increases largely.

Climate

The area has a temperate continental climate. Winters are mainly cloudy, with relatively large amount of snow. Summers are hot and low-cloudy. Droughts and dry winds are frequent. The mean air temperatures are between +7 and +9°C in spring, +21 and +24°C in summer, +7 and +11°C in autumn, and between -8 and -9°C in winter. The mean annual temperature is about +8 or +9°C. Annual precipitation varies from 300 to 400 mm. The prevailing winds are southerly, southeasterly, and less often westerly. Full freezing is is not observed every year (once in three years in December). Ice drift is observed in late February or early March, and temporary icing (2-7 days) may occur in November.

15. Hydrological values: Manych-Gudilo and East Manych are the largest lakes in Ciscaucasia. They have a unique hydrology of the liman type, and possess hydrological features dating back tens of thousands of years to the last major expansion period of the Black and Caspian Seas.

16. Ecological features: The main habitats for wildlife are the islands. Differences in the elevation, area and micro-relief of the islands, annual and seasonal fluctuations in water level, and variations in the salinity all affect the pattern of plant succession on the islands, and thus create a wide variety of conditions which meet the breeding requirements of various groups of birds. Three types of islands are recognized:

- High islands, with a surface over two metres above water level during the maximum flood. Herb-forb associations dominate in the central part of the islands. This type of island covers 0.8% of the total area of the site.
- Islands of medium elevation, with a surface between one and two metres above water level during the maximum flood. Herb-forb associations show a more intense response to fluctuations in the water-salt regime, from domination by this plant formation to complete replacement by single-species associations of *Elutrigia* sp. and *Atriplex* sp. This habitat occupies 0.4% of the area.
- Low islands, with an elevation of under one metre. The vegetation is characterised by frequent replacement of hydrophilous communities (*Salicornia* sp., *Suaeda* sp., *etc*.) for meso-xerophilous (*Sisymbrium* sp., *Vitex* sp., *Atriplex* sp.) and *vice versa* (Linkov, 1983). These islands cover 0.6% of the area.

On some islands which are inhabited by large colonies of pelicans *Pelecanus* spp., Eurasian spoonbills *Platalea leucorodia* and great black-headed gulls *Larus ichtyaetus*, the plant succession is mainly zoogenic in character. In general, the breeding bird communities on low islands consist of colonies of shorebirds, gulls and terns, while the most complex communities are typical of medium islands and, to a lesser extent, high islands.

Other habitats include various types of wetlands:

- Shallow waters, with depths ranging from 0.3 to 2.0-3.0 m. These occupy 14.2% of the total area. These areas support extensive submerged beds of *Zannichellia* sp., *Ruppia* sp., *Potamogeton filiformis*, and *P. pectinatus*, and also patches of *Vaucheria* sp., and algae (Characeae and Cladophoraceae). In summer, in well-warmed shallows with permanent water circulation (*i.e*. in the majority of shallow waters), there is a massive production of zooplankton and benthos. Crustaceans, mainly Copepoda and Cladocera (c.50 species), form the basis of the zooplankton. The biomass of zooplankton can reach 50 g/m^3, and that of benthos 40 g/m^2. Hundreds of thousands of waterfowl gather in these areas during the migration and moulting seasons.
- Deep waters, with an average depth of 3-5 m. Aquatic vegetation is relatively abundant. These deep-water areas, which cover 56% of the total, are important staging and feeding areas for summering and moulting geese and other waterfowl.
- Reed-beds and clumps of reeds. These occur in a very narrow zone in some gulfs and at the southeast corner of East Manych Lake, covering 4% of the total area of the site.
- Lake shores and adjacent areas, comprising near-natural semi-desert and steppe landscapes with chestnut soils and south chernozems (24%). Vegetation is dominated by graminea, herbs and *Artemisia* sp. Some areas are covered with cereals and other cultivated plants, and these are especially attractive to geese during the migration seasons and in winter.

17. Noteworthy flora: The vegetation of the Manych area belongs to the Caspian-Kazakhstan sagebrush-fescue-feathergrass and sagebrush-fescue steppes. Common plants include *Stipa lessingiana, Statice tatatrica, Kochia prostrata, Limonium suffruticosum*, *Salvia* sp., *Galium verum, Artemisia pontica, Inula* sp., *Vicea* sp., *Tulipa schrenkii, T. biebersteiniana, Ornithogallum fischerii, Bellevania sarmatica, Poa bulbosa, Agropyrum repens, Beckmannia eruciformis, Agropyrum cristatum* and *Lathirus flava*. Species listed in the Russian Red Data Book include *Tulipa schrenkii, T.biebersteiniana, Ornithogallum fischerii* and *Centaurea taliewii*.

18. Noteworthy fauna:

Birds

(a) Migrating species

The site is located on one of the most important migration routes in Eurasia, connecting important breeding grounds in Western Siberia, Taimyr and Kazakhstan with the Near and Middle East, and North and East Africa. At present, the wetland is one of the most important staging areas for migrating geese and other waterfowl in Russia.

An estimated 1.5 million ducks and 400,000 geese, including 8,000 red-breasted geese *Branta ruficollis*, pass through the area in spring (Linkov, 1989). The spring migration begins in late February and early March, and mass migrations occur in late March and early April. Most of the migrating birds pass through the area quickly, although in some years white-fronted geese *Anser albifrons*, lesser white-fronted geese *A. erythropus* and red-breasted geese *Branta ruficollis* may remain at the lakes untill early or mid-May. The most abundant ducks are mallard *Anas platyrhynchos*, northern pintail *A. acuta*, gadwall *A. strepera*, northern shoveler *A. clypeata*, common pochard *Aythya ferina* and tufted duck *A. fuligula*. Whooper swans *Cygnus cygnus* occur on migration in March and early April, and in some years Bewick's swans *C. columbianus bewickii* are also observed. The migration of mute swans *C. olor* takes place in the period from March to May. Shore birds, such as grey plover *Pluvialis squatarola*, Asiatic golden plover *Pluvialis dominica*, sandpipers *Calidris* sp., ruff *Philomachus pugnax* and red-necked phalarope *Phalaropus lobatus*, and gulls and terns (Laridae) also migrate through the Manych wetlands in very large numbers.

An estimated three million ducks and 500,000 geese, including 8,000-20,000 *Branta ruficollis* pass through the area in autumn (Krivenko *et al*., 1980). At present, almost the entire world population of red-breasted goose *Branta ruficollis* and a substantial proportion of the white-headed duck *Oxyura leucocephala* (flocks with 50-200 birds have been registered) migrate through the Manych valley. The species composition of the waterfowl in autumn is similar to that in spring, but the common coot *Fulica atra* occurs in much larger numbers. Other common migrants in autumn (numerous in some years) include Eurasian wigeon *Anas penelope*, common teal *A. crecca*, garganey *A. querquedula*, long-tailed duck *Clangula hyemalis*, common goldeneye *Bucephala clangula*, snew *Mergus albellus* and goosander *Mergus merganser*. In some years, the birds pass through the area quickly, while in others, large numbers of ducks and geese remain until the water freezes over in December or January. In mild winters, many waterfowl may remain throughout the winter. Approximately once in every three years, hundreds of thousands of geese, mainly white-fronted geese *Anser albifrons* winter in the wetlands.

(b) Breeding species

The wetlands support large breeding populations of Pelecaniformes, Ciconiiformes and Charadriiformes. Between 1969 and 1991, the numbers of colonial breeding birds at Lake Manych-Gudilo varied within the following ranges: white pelican *Pelecanus onocrotalus*: 50-240, Dalmatian pelican *P. crispus*: 6-120, Eurasian spoonbill *Platalea leucorodia*: 200-300, grey heron *Ardea cinerea*: 10-180, great black-headed gull *Larus ichthyaeetus*: 600-1,200, herring gull *L. argentatus*: 1,200-3,000, Mediterranean black-headed gull *L. melanocephalus*: 250-2,400 and slender-billed gull *L. genei*: 100-1,000.

Common breeding birds include great cormorant *Phalacracorax carbo*, little egret *Egretta garzetta*, stone-curlew *Burhinus oedicnemus*, avocet *Recurvirostra avosetta*, black-winged stilt *Himantopus himantopus* and little bustard *Otis tetrax*.

The breeding population of Anatidae on Lake Manych-Gudilo shows fluctuations in size from 150 to 300 pairs depending on both natural and anthropogenic causes. The mean percentage composition of species is the following: gadwall *Anas strepera*: 37,3%; mallard *A. platyrhynchos*: 30,0%; red-crested pochard *Netta rufina*: 9,5%; tufted duck *Aythya fuligula* and shelduck *Tadorna tadorna*: 3,2-3,5%; common pintail *Anas acuta*: 1,5%; greylag goose *Anser anser*, mute swan *Cygnus olor*, shoveler *Anas clypeata*, white-eyed pochard *Aythya nyroca*, and ruddy shelduck *Tadorna ferruginea*: 0,2-0,5%.

On Lake Kazinka (the western portion of Proletarskoye Reservoir), the following breeding birds were registered in the late 1970s: grey heron *Ardea cinerea*: 200 pairs; great white egret *Egretta alba*:

200 pairs; little egret *E. garzetta*: 200 pairs; night heron *Nycticorax nycticorax*: 30-50 pairs; squacco heron *Ardeola ralloides*: 30 pairs; glossy ibis *Plegadis falcinellus*: 50 pairs and spoonbill *Platalea leucorodia*: 120 pairs. These colonies have been mainly abandoned after the salinity of water in the eastern part of the reservoir increased and fish ponds were built in the western part.

In 1990 and 1991, eight bird colonies were registered on the islands in the central part of the reservoir. The populations were the following: grey heron *Ardea cinerea*: 300 nests, great white egret *Egretta alba*: about 100 nests; little egret *E. garzetta*: 50-60; night heron *Nycticorax nycticorax*: 40-50 nests and spoonbill *Platalea leucorodia*: about 300 nests. Two colonies of cormorant *Phalacrocorax carbo* with a total of 60 birds were first registered on the islands in 1990. The Laridae were represented by eight colonies of herring gull *Larus argentatus* with a total of 800 birds and three colonies of great black-headed gull *L. ichthyaeetus*: there were two colonies with 60-70 birds in a year when the level of water was low; and over 500 pairs were registered only on Lake Kazinka in a year when the water level was high.

The breeding populations of Anatidae vary considerably with the level of inundation. In the 1970s, about 1,000 pairs of ducks (*Anas platyrhynchos, A. strepera, Netta rufina* and *Aythya ferina*) and 50-60 pairs of greylag geese *Anser anser* breeded on Lake Kazinka. The present numbers are unknown.

Large moulting concentrations of ruddy shelduck *Tadorna ferruginea* (over 20,000 birds) occur on Lake Manych-Gudilo in dry years.

Other fauna

Common mammals in the area include: wild boar *Sus scrofa*, saiga antelope *Saiga tatarica tatarica* and wolf *Canis lupus* (occurs very seldom). In the adjacent areas, red fox *Vulpes vulpes* (at least 200 individuals), corsac fox *Vulpes corsac*, racoon dog *Nyctereutes procyonoides* (over 100 individuals), brown hare *Lepus europaeus* (at least 300), polecat *Mustela putorius* are common. Muskrat *Ondatra zibethicus* occurs in southeastern part of East Manych Lake. Species of rare occurrence include marbled polecat *Vormela peregusna peregusna*, Caucasian otter *Lutra lutra meredionalis*, badger *Meles meles*, wild cat *Felis sylvestris*, jerboas *Allactaga* sp., tamarisk gerbil *Meriones tamariscinus*, midday gerbil *M.meridianus*, eared hedgehog *Hemiechinus auretum* and *Spalax giganteus*.

The fish fauna is represented by *Cyprinus carpio, Rutilus rutilus, Caspian roach, Scardinius erythrophthalmus* and *Luceoperca luceoperca*.

Reptiles are characterised by *Chelonia* sp., *Vipera ursini, Eryx miliaris, Elaphe dione, Malpolon monspessulanus, Natrix natrix, N.tesselata, Ophisaurus apodis, Eremias arguta* and *E. velox*.

Rare and endangered species

A group of rare and endangered species includes 26 bird species and 3 mammals.

Species of birds listed in the Red Data Book of Russian Federation include:

- Dalmatian pelican *Pelecanus crispus*: a breeding species (over 100 pairs). The numbers are increasing.
- White pelican *Pelecanus onocrotalus*: a breeding species (about 300 pairs). Numbers are increasing.
- Eurasian spoonbill *Platalea leucorodia*: a breeding species (400-900 pairs).
- Glossy ibis *Plegadis falcinellus*: a breeding species (50 pairs).
- White-headed duck *Oxyura leucocephala*: an occasional breeding species (several pairs) and common passage migrant, with up to 1,000 birds present in autumn.
- Steppe eagle *Aquila nipalensis*: a breeding species (one pair).
- Little bustard *Tetrax tetrax*: a breeding species, (15-20 broods).
- Demoiselle crane *Anthropoides virgo*: an occasional breeding species (single pairs).
- Black-winged stilt *Himantopus himantopus*: a breeding species (10-50 pairs).
- Avocet *Recurvirostra avosetta*: a breeding species (100 pairs).
- Stone-curlew *Burhinus oedicnemus*: a breeding species (several pairs).
- Great black-headed gull *Larus ichthyaetus*: a breeding species (about 1,000 pairs).

The following species are regular passage migrants: Red-breasted goose *Branta ruficollis* (*c.* 20,000 birds), lesser white-fronted goose *Anser erythropus* (*c.* 10,000 birds), osprey *Pandion haliaeetus*, shikra *Accipiter badius*, white-tailed eagle *Haliaeetus albicilla*, short-toed eagle *Circaetus gallicus*, golden eagle *Aquila chrisaetos*, long-legged buzzard *Buteo rufinus*, saker falcon *Falco cherrug* and peregrine falcon

Falco peregrinus. Greater flamingo *Phoenicopterus roseus*, snow goose *Anser caerulescens* and black vulture *Aegypius monachus* have been recorded as vagrants.

Four of these species (*Pelecanus crispus*, *Anser erythropus*, *Branta ruficollis* and *Oxyura leucocephala*) are listed as globally threatened in the IUCN Red Data Book.

Rare mammals that occur at the site are *Nyctalus lasiopterus, Vormela peregusna* and *Mormota bobak.*

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19. Social and cultural values: The Manych depression (Kuma-Manych Basin) is a conventional boundary between Europe and Asia. It is an important site on the world archaeological map: there are several kurgans (burial mounds) of the Scythian-Sarmatian period. There is a high potential for international research on waterfowl migrations.

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20. Land tenure/ownership: The water area and islands of Lake Manych-Gudilo, including Bujan Island in the west, belong to the Chernye Zemli Nature Reserve and thus are the national property. The water area of the Proletarskoye Reservoir is allotted to the Volga-Don Basin Management Office. The other part of the area is owned by resource-users with collective proprietary rights.

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21. Current land use: Various cereals, including spring and winter cereals (barley and wheat), are grown along the lake shores. Other crops include alfalfa, maize and occasionally water melons and musk melons. Most of lake shores are used as pastures for grazing. The stock include cattle (over 2,000) and sheep (4,500). A herd of 50-100 horses is kept every year on the largest island of Madyk. Fisheries are small-scaled. Attempts are being made to introduce *Pleuroneceus flesus luscus, Huso huso x Acipenser ruthenus* and *Mugil so-iuy* into the reservoirs. A few fish ponds have been created. Occasional visits are made to the islands during the breeding season by students from the cities of Rostov-on-Don, Elista and Stavropol, but there is little eco-tourism.

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22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects: The unregulated discharge of waste water from numerous irrigation systems into the lakes in spring and summer raises water levels and accelerates erosion of the islands due to wave action during storms. This can result in the loss of many eggs and hatches of breeding pelicans, gulls and other waterbirds.

In the 1970s and 1980s, the Manych wetlands were subjected to considerable agricultural pollution with pesticides and fertilizers applied in the Stavropol Territory in large quantities.

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23. Conservation measures taken: An area of 50,000 ha (including one third of the water area of lakes Manych-Gudilo and East Manych as well as adjacent lands) is protected as a federal nature reserve (‘zakaznik’). The reserve was established in 1975. Economic activity is not limited in the shore areas, but the water area and islands are under strict protection.

In 1990, a water area of 27,600 ha, which had been a part of the zakaznik, was included in the Chernye Zemli State Nature Reserve (‘zapovednik’), where the highest level of nature protection is provided.

The 9,465 ha Rostovsky Nature Reserve was established in 1995 in the western portion of the site.

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24. Conservation measures proposed but not yet implemented: It has been proposed to extend the Ramsar site in area.

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25. Current scientific research and facilities: Large-scale research into the natural ecosystems of the Manych valley, associated with the development of major hydrological projects ('Manych Water Way'), was started in the early 1930s. Lisitsin (1932, 1933), Grigorovitch (1938), Berezovsky (1933), Chebotarev (1934-1937) and Popov (1955) studied hydrology and biology of the water bodies. Zakharov (1939, 1940), Bolyshev and Zubtsova (1950) investigated the soils; Novopokrovsky (1927-1940) and others studied the vegetation. The hydrology, water chemistry and ecosystems of the Proletarskoye Reservoir have been monitored since 1948, when it was created (Mardukhai-Boltovskoi, 1948; Kharin, 1948; Mikhailovsky, 1949). Extensive studies have been carried out by Rostov University, including research on phyto-plankton (Moroz, 1960), zooplankton (Shevchenko, 1958, 1959) and fodder resources for fish (Kruglova, 1958-1964). Research into fish populations was started by V.P.Troitsky (1934) and I.Ya.Syrovatsky (1941). Bervald (1962), Fridlyand and Yershova (1957) addressed the question of the fish stock reproduction. The first publications on regional avifauna appeared in the 1950s (Oleinikov, 1953; Ogarev, 1954; Minoransky, 1962). Yazykova (1973) studied pelicans, herons and gulls. Regular ornithological research in the Proletarskoye Reservoir has been carried out since the late 70s (Kazakov *et al.* 1977, 1980, 1981, 1982, 1983, 1987, 1988, 1989, 1990, 1991), and in Lake Manych-Gudilo, since 1969 (Krivenko, 1991).

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26. Current conservation education: Various articles of popular literature, posters and television programmes have been produced.

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27. Current recreation and tourism: Poorly developed. Occasional visits are made to the islands during the breeding season by students from the cities of Rostov-on-Don, Elista and Stavropol. The area has a good potential for the development of bird-watching tourism. Funds and qualified personnel are required.

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28. Jurisdiction:
Territorial: Government of Republik of Kalmykia (Dom Pravitelstva, Lenin Street, Elista 358000, Republic of Kalmykia-Khalmg Tangch); Administration of Rostov Region (112 Sotsialisticheskaya Street, Rostov-on-Don 344050, Russia).
Functional: State Committee of the Russian Federation for Environmental Protection (4/6 Bolshaya Gruzinskaya Street, Moscow 123812, Russia).

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29. Management authority: The area of the strict nature reserve (Chernye Zemli zapovednik) is managed by the reserve's administration (Komsomolsky, Chernozemelsky District, Kalmykia 359240). Rostov Regional Committee for Environmental Protection (46/76 Voroshilovsky Pr., Rostov-on-Don 344010, Russia).

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30. Bibliographical references: Berezovsky (1933); Bervald (1962); Bolyshev & Zubtsova (1950); Chebotarev (1934-1937); Grigorovitch (1938); Fridlyand & Yershova (1957); Kazakov *et al.* (1977, 1980, 1981, 1982, 1983, 1987, 1988, 1989, 1990, 1991); Kharin (1948); Krivenko (1981, 1991); Krivenko *et al.* (1980); Kruglova (1958-1964); Linkov (1983); Lisitsin (1932, 1933); Mardukhai-Boltovskoi (1948); Mikhailovsky (1949); Minoransky (1962); Moroz (1960); Ogarev (1954); Oleinikov (1953); Popov (1955); Shevchenko (1958, 1959); Syrovatsky (1941); Troitsky (1934); Yazykova (1973); Zakharov (1939, 1940).
