



Copyright: Original content from this work may be used under the terms of the creative commons attributes 4.0 licence.

Scientific Basis Of Protection Of Wild Species Of Cultural Plants Of Karakalpakstan

A.B.Ajiev

Associate Professor Of The Department Of Methods Of Teaching Botany And Ecology, Nukus State Pedagogical Institute Named After Azhiniyaz, Nukus, Uzbekistan

G.P.Almenova

Student 2 - Course In Biology Of Nukus State Pedagogical Institute Named After Azhiniyaz, Uzbekistan

ABSTRACT

The article substantiates the scientific basis for the protection of wild relatives of cultivated plants in Karakalpakstan. According to the classification, 10 species (or 5, 8%) were included in the category of rare species. These are representatives of 7 families from 9 genera. The category of species whose range is declining includes 9 species from 7 families and 9 genera. Micro-foci of maximum concentration of DSCR were identified, and it was proposed to create 5 more OPTs in them. It is also proposed to declare the populations of *Malacocarpus crithmifolius* (Retz) C.A. Mey., *Amygdalus spinosissima* Bunge and *Ammodendron longiracemosum* Raik as natural monuments.

KEYWORDS

Dikorastushchin, relatives of cultivated plants, protection of the DSKR, rare species of Karakalpakstan, scientific foundations of plant protection, etc.

INTRODUCTION

Wild relatives of cultivated plants (DSCR) are a natural valuable gene pool from which mankind constantly draws and will draw the initial material for breeding. This gene pool is the property of not only one of our countries, but also the humanity of the entire planet.

Scientists have long known that each species is “a unique experiment of nature, the keeper of the gene pool and information of phylogenetic development. Its extinction is an irreplaceable loss” (Lvov PP 1979 p. 80).

Therefore, the study and subsequent use of wild relatives of cultivated plants in practical

breeding of the present and future should be directly related to their preservation in natural nature (Brezhnev D.D., Korovina O.N., 1982).

In the "Message of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis," the President paid special attention to the problem of environmental protection, including vegetation cover, rational use and reproduction of natural resources ("Narodnoye Slovo", December 29, 2018).

A careful and diligent attitude towards nature is also reflected in the Basic Law - in Article 50, the Constitution of the Republic of Uzbekistan and Article - 48 of the Constitution of the Republic of Karakalpakstan.

In the resolution of the XII International Botanical Congress, held in 1975, it was first stated that "wild relatives of cultivated plants are an important source of genetic diversity for the continued improvement of crops, and that they must be carefully protected for the future." Therefore, the protection of wild relatives of cultivated plants has now become a serious and international problem.

All-Union Scientific Research Institute of Plant Industry named after NI Vavilova (VNIIR) takes an active part in solving the problems of protecting genetic diversity, both in our country and around the world.

A special place in our research was occupied by the problem of preserving genetic diversity in nature, at experimental stations, in the country's botanical gardens (Bondarenko O.N., 1973; Korovina O.N., Brezhnev D.D., 1982), because human influence in connection with the development of scientific and technological progress and the associated environmental pollution can lead to the loss of a valuable natural gene pool (Reimar N.F., Shtilmark F.R., 1978; Fischer M., 1982; Henelt P., 1982; Schlosser S., 1982; Irmtraud T., 1983).

The human influence on the wild populations of the relatives of cultivated plants remains

enormous. As evidenced by the facts presented by us, the areas of the ranges of many wild relatives of cultivated plants have already decreased and their populations have greatly thinned, and in some places they have completely disappeared (Ajiev, 2020a). It should be noted that this process continues at the present time, although a person tries to do everything possible to prevent it. The data of our research suggests that it is necessary to take seriously the preservation of wild relatives of cultivated plants in the wild and make every effort to preserve the valuable gene pool dispersed in our flora.

All taken together, it gave us the opportunity to develop scientifically based measures for the protection of wild relatives of cultivated plants, which, in our opinion, are reduced to theoretical (protection of certain species) and practical (protection of populations in natural nature) forms of protection.

Protection of certain species

The most important task of plant breeders is to preserve in our nature all the species diversity of the wild relatives of cultivated plants growing in it. For this purpose, apparently, it is necessary to scientifically substantiate and develop a set of measures to preserve them, first of all, rarely occurring and endemic species.

In the current conditions, first of all, practical matters are necessary, otherwise we risk quickly and permanently losing a share of those treasures in which our flora is so rich. In this regard, it is necessary to identify those species that should be preserved in certain regions (Owen C.S., 1971); Gabrielyan E.Ts., Danilova L.V., Kamelin R.V. et al., 1981). In this case, we can talk about the Central Asian focus. That is why, we carried out an inventory of wild relatives of cultivated plants not only in the USSR (Brezhnev D.D., Korovina O.N., 1981), but also on the territory of Karakalpakstan and

Khorezm of the origin of cultivated plants (Korovina O.N., 1982).

As a result of our research in the territory of Karakalpakstan and Khorezm, 171 species of wild relatives of cultivated plants were

recorded, among which there are 3 endemic species. Rarely found species - 10 (see table 1), i.e. 1.7 part (Nikitin V.V., Bondarenko O.N., 1973; Bondarenko O.N., 1975; Korovina O.N., 1980, 1982).

Table 1

Species rarely found and with a diminishing range

Nº	Families and species	Occasionally encountered	Reduced area
FABACEAE Lindl.			
1	<i>Caragana grandiflora</i> (Beib.) DC.	+	+
IRIDACEAE Juss.			
2	<i>Iris falcifolia</i> Bunge	+	+
LAMIACEAE Lindl (Labiatae Juss.)			
3	<i>Lagochilus acutilobus</i> (Ledeb.) Fisch. & C.A. Mey.	+	+
NITRARIACEAE Bercht. & J.Presl.			
4	<i>Nytrariya sibirica</i> Pall.	+	
PEGANACEAE (Engl.) Tiegh. ex Takht.			
5	<i>Malacocarpus crithmifolius</i> (Retz.) C.A.Mey.	+	
POACEAE Barnhart			
6	<i>Stipa barchanica</i> Lomonosova	+	+
ROSACEAE Juss.			
7	<i>Amigdalus spinossisima</i> Bunge	+	
8	<i>Crataegus korolkovii</i> L. Henry	+	+
9	<i>C. pontica</i> C. Koch.	+	+
10	<i>Ammodendron longiracemosum</i> Raik	+	+
Result:		10	7

We have prepared a list of 9 species that need protection to be included in the next edition of the “Red Book of RUz” (Table 2).

Species in need of protection are divided into categories (0 and 2), according to the classification of the Commission on Rare and Endangered Species of the International Union for the Conservation of Nature (1975): 0 - rare species, and 2 - a species whose range is decreasing. At the same time, the species were

selected taking into account the following principles: narrow locality, relict, rare occurrence and intensity of exploitation in nature.

According to the classification, the first category (rare species) included 10 species (or 5.8%). These are representatives of 7 families from 9 genera (Table 2).

table 2

Species of wild relatives of cultivated plants, proposed for inclusion in the Red Book of the Republic of Uzbekistan

Nº	Families and species
FABACEAE Lindl.	
1	<i>Caragana grandiflora</i> (Beib.) DC. – caragana large-flowered
IRIDACEAE Juss.	
2	<i>Iris falcifolia</i> Bunge – iris sickle
LAMIACEAE Lindl (Labiatae Juss.)	
3	<i>Lagochilus acutilobus</i> (Ledeb.) Fisch. & C.A. Mey. – harelip
NITRARIACEAE Bercht. & J.Presl.	
4	<i>Nytrariya sibirica</i> Pall. – Siberian saltpeter
PEGANACEAE (Engl.) Tiegh. ex Takht.	
5	<i>Malacocarpus crithmifolius</i> (Retz.) C.A.Mey. – softcarp
POACEAE Barnhart	
6	<i>Stipa barchanica</i> Lomonosova – beautiful feather grass
ROSACEAE Juss.	
7	<i>Amigdalus spinossisima</i> Bunge – prickly almond
8	<i>Crataegus korolkovii</i> L. Henry – King's hawthorn
9	<i>C. pontica</i> C. Koch. – pontic hawthorn

The second category (species whose range is declining) includes 9 species from 7 families and 9 genera.

In general, the list of species of wild relatives of cultivated plants that we have identified that require priority protection is not so large, but their preservation is necessary for breeding the present and future.

It is necessary to preserve on the territory of our country having a wide range, because in different parts of the range they carry unique biological properties and characteristics (Korovina O.V., 1980). For the present and the future, it is necessary to preserve all intraspecific diversity, or, more precisely, the genetic diversity of species.

Therefore, we consider it expedient to include these species in the next edition of the "Red Book of the Republic of Uzbekistan", since humanity should not lose them, lose the opportunity to use them in selection.

Theoretical protection of wild relatives of cultivated plants, that is, protection carried out through the "Red Book" or through the announcement of various kinds of lists of species as well as plants in general, should be accompanied by a wide propaganda of their importance for practical selection and humanity. Propaganda should be carried out through radio, television, newspapers, magazines and other large-circulation publications, as well as through the reading of lectures and reports among pupils, students, workers, etc. We also intensified this activity in the course of our work.

Protection of populations of wild relatives of cultivated plants in nature.

Practical protection of species of wild relatives of cultivated plants is possible in places of their maximum concentration in different places of the studied area by creating reserves or preserving narrow-localized species (limited to a small territory) as natural monuments and protected areas.

It should be noted that the protection of wild relatives of cultivated plants, as well as plants in general, can be representative if at least 80% of them are taken under protection (Kozlovskaya N.F., 1980).

According to our data, the analysis of the state of protection of wild relatives of cultivated plants in Karakalpakstan and Khorezm was carried out on the basis of their ecological-geographical zoning. On the basis of this, we were able to determine the composition and number of wild-growing relatives of cultivated plants (including endemic species) in each of the subdistricts we identified and determine the micro-foci of their maximum concentration. These data made it possible to substantiate the creation of new protected areas for the preservation of valuable genetic diversity, and thereby to carry out the study and systematic collection of source material for further study and use in practical breeding.

An in-depth study of the distribution of wild relatives of cultivated plants, their state in nature during expeditions and according to literature data, allowed us to reveal micro-foci of their maximum concentration for such images and to propose the creation of 5 more PAs in them (Ajiev, 2020P).

In addition to the protected areas proposed for the conservation of wild relatives of cultivated plants in the places of their greatest concentration, in which the vast majority of species will presumably be protected, it is very important to pay attention to the narrow-local populations of some rare and endemic species.

In this case, we propose to declare the population of the soft carp *Malacocarpus crithmifolius* (Retz) C.A.Mey., Growing on the cliffs of the cliff in the Kassarma tract, as natural monuments; prickly almond - *Amygdalus spinosissima* Bunge, growing on the sandy-gravelly slopes of the north-western Kyzyl Kum (there are single outlier uplands of Sultanuizdag and Beltau); Long-leaved sandy acacia - *Dendron longiracemosum* Raik, found only in the area of about Tokmakta.

Thus, the implementation of the protection of selected species through the "Red Book of RUz", the protection of species in the proposed protected areas, as well as the protection of the population of valuable relict species as natural monuments, allows covering 109 species (or 63.7%) of 171 wild relatives of cultivated plants in Karakalpakstan and Khorezm. And only 62 species of wild-growing relatives of cultivated plants (or only 36.3%) remain outside protection, but these species have a very extensive range.

With such coverage of conservation of species of wild relatives of cultivated plants of the outbreak, we believe that the protection can be considered quite representative.

Practically, however, it is more effective to carry out the protection of wild relatives of

cultivated plants in reserves, wildlife reserves, in living collections in botanical gardens, at experimental stations and at school botanical sites. It will be very helpful to declare some populations of rare species as natural monuments. In this regard, lists of species should be sent to botanical gardens (located on the territory of Uzbekistan of origin of cultivated plants), to experimental stations and reserves with a proposal to introduce them into living collections, thereby preserving and studying them. At present, interest in the wild relatives of cultivated plants has greatly increased all over the world. As a result, we believe that in-depth study of wild relatives of cultivated plants in Uzbekistan is at the governmental level.

REFERENCES

1. Bondarenko O. N. (Korovina), Sarybaev B. Synopsis of the flora of the Eastern Chink of Ustyurt. - In: Bioecological characteristics of the main plants of the Karakalpak Ustyurt. Tashkent: "FAN" of the UzSSR, 1973, p. 194-239.
2. Brezhnev. D. D., Korovina O. N. Environmental change as a result of human activity. - In the book: Man and the world of plants. - M.: Kolos, 1982, p. 89-125.
3. The Constitution of the Republic of Uzbekistan was adopted on December 8, 1992 at the eleventh session of the Supreme Council of the Republic of Uzbekistan of the twelfth convocation.
4. The Constitution of the Republic of Karakalpakstan was adopted on April 9, 1993 at the twelfth session of the

-
- Supreme Council of the Republic of Karakalpakstan of the twelfth convocation
 5. Lviv P. L. To the conservation of rare plants and phytocenoses in Dagestan-Nature, 1979, No. 3, pp. 80-87.
 6. Narodnoe Slovo, December 29, 2018.
 7. Message of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis", "Narodnoe Slovo", December 29, 2018.
 8. Reimar S. N. F., Shtilmark F. R. Specially protected natural territories. Moscow: Mysl, 1978. -295 p.
 9. Ajiyev A.B. Current state of natural focals of wild relatives of cultivated plants. Science and Education in Karakalpakstan 2020 №3 ISSN 2181-9203. –Pp. 24-29.
 10. Ajiyev A.B. Wild Relatives of cultivated plants of the republic of Karakalpakstan AND Khorezm and their economic significance. Vol. 21 No. 6 (2020): October 2020. Journal of Natural Remedies (JNR) c ISSN: 2320-3358
 11. Fischer M. Die Verwendung von Willdarten in der Obstzuchtung. – Naturschutzarbeit, 1982, N 19, -Pp. 35-38.
 12. Hanelt P. Zentralinstitut für Genetik und Kulturpflanzenforschung Gatersleben der Akademie der Wissenschaften der DDR.- Naturschutzarbeit, 1982, N 19, S. 22-25.
 13. Irmtraud Tille. Zur Erhaltung der Wildformen von Kulturpflanzen in Naturschutzgebieten der Sowjetunion.-Arch. Naturschutz, u. Landschaftsforsch., 1983, Bd. 23, H. 2. S. 113-116.
 14. Schlosser S. Heimische Para – und Blütenpflanzen als Genressource für Züchtung und Nutzung. – Naturschutzarbeit. Halle und Magdeburg, 1982, v 19, p. 49-97.