International Symposium

on Invasive Plants and Global Change

Proceedings

June 14-17, Urumqi, China

Forestry activity is one of mechanisms of invisibility by arboreus plants

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For long time forestry was more industrial , then nature protection branch. The volume of wood was the main criterion of forestry efficacy. That was why rapid growing arboreus species were cultivated in natural forests. The years had gone. Such species became aggressive components of natural ecological systems.

The results of such aggression is obvious in natural forests of Transiliyskiy Alatau. Here *Ulmus pumila* L. was used for creation of forest cultures from beginning of XX century. To beginning of XXI century this plants became aggressive in natural forest ecological systems of Ile-Alatauskiy State Nature Park. There are forest cultures of *Ulmus pumila* L. in 4 forest blocks. This species is aggressive in 6 forest blocks now. The most dangerous situation is in apricot-maple forests. Here part of elm trees is 79 % of total number of trees and 96% of young trees. The apricot-maple forests is transformed into elm forest are not natural for the region. The aggressive position of *Ulmus pumila* L. is obvious.

It is not correctly to divide invisibile plants into aggressive and non aggressive. The position of invisibile species in new for it natural ecological system is changeable in time. Such changeability is connected with changeability in time of ecological conditions (climatic by the first). Invisibile species for long time may lives in ecological system without increase of number of plants. Such condition of invisibile species we call "Latent". The level of aggressiveness of "Latent" species may be increased by changing of ecological conditions. Next step of aggressiveness is "Potential aggressive" species. The number of plants of such species is increasing in natural ecosystem, but not so much to change it. We can call species "Potential aggressive" until number of it's will be not more then 5% of total number of trees in community or of it's young trees. If the number of invisibile species will be more, in will become into "Aggressive".

The beginning of XXI century is time to see changeability of aggressiveness levels of invisibile arboreus species in Transiliyskiy and Djungarskiy Alatau . *Pinus sylvestris* L. was used for creation of forest cultures in Transiliyskiy Alatau more then 100 years. All this time *Pinus* sylvestris L. was "Latent". It becomes "Potential aggressive" now. Now we see plants of *Pinus sylvestris* L. out of forest cultures in nature societies. *Quercus robur* L. was used for creation of forest cultures in Djungarskiy Alatau more then 50 years. All this time it was "Latent". *Quercus robur* L. becomes "Potential aggressive" now in some societies of Djungarskiy Alatau. We are to know, that the same invisibile arboreus species at the same time has different levels of aggressiveness not in different ecological systems only, but in different societies of one ecological system as well.

Alien and invasive plants in
the North-eastern coast of the Caspian Sea in historical aspect

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The study area occupies the territory of Novo-Caspian marine plain of Caspian depression (-27 to -22 m above the B.S.L.). The North Caspian depression is part of the continental or semi-arid desert biome. The area receives 150-200 mm of rain or less per year.

The modern history of the Caspian Sea region is associated with the Novo-Caspian stage starting in the Holocene (10 thousand years). The youngest generation of the marine plain is the Novo-Caspian. Within the Novo-Caspian plain, two marine terraces are identified: the first terrace (late Novo-Caspian plain) is found at the absolute elevation from –27 m to –25.5 m; the second one (early Novo-Caspian plain) is found on the absolute elevation from –25.5 m to –22 m. The terraces were formed at different times. The early Novo-Caspian plain came to the day surface in the 17th century. The formation of the late Novo-Caspian plain started after the sea regression at the turn of the 18th–19th centuries. The last regression of the sea level (by 3 m) was observed from 1929 to 1977. The transgressive stage in the sea's history began in 1978. By 2000, the level had stabilized at the mark of –27 abs. m (2 m above the 1977 level).

Flora of the Caspian Sea shore within Novo-Caspian plain consists of 342 species belonging to 43 families and 163 genera. Species from *Chenopodiaceae, Asteraceae, Poaceae, Brassicaceae* and *Polygonaceae* families prevail.

Analysis of the geographical distribution of species is based on Schemes of botanical-geographical regionalization of the Ancient Mediterranean subdominion (Lavrenko 1962) the Eurasian steppe region (Lavrenko 1970) and desert region of Kazakhstan and Middle Asia (Rachkovskaya et al. 2003). The types of areas are not equivalent in size. Species in one area are not characterized by absolute coincidence of geographical distribution. There are 15 types of geoelements in the North-eastern coast of the Caspian Sea. They are as follows: Cosmopolitan (4%); Holarctic (4.4%); Palaearctic (22.2%); Mediterranean (18.4%); Eastern Mediterranean (18.4%); Irano-Turanian (5.8%); Turanian (5.3%); Northern Turanian (3.2%); Northern Turanian- (Turanian-, Irano-Turanian-) Dzungarian (4.1%); Pontic–northern Turanian (-Turanian, -Irano-Turanian) (6.7%); Northern Turanian–western Siberian (1.2%);

Trans-Volga-Kazakhstan steppe (2.3%); Endemics of Kazakhstan (1.5%); Aralo-Caspian (1.5%); Caspian (1.2%).

According to geographical analysis the most of the present species are connected with the Ancient Mediterranean territory (the eastern part) (36.8%) belong to Mediterranean and eastern Mediterranean areas. Typical desert species of Irano-Turanian, Turanian, Northern Turanian, Dzungarian areas compose 18.4%. Autochthonic Caspian and Aralo-Caspian species represent only a small part of the flora (nine species, 2.7%). Species of wide geographical distribution (Cosmopolitan, Holarctic, Palaearctic) comprise of 30.6%. They are alien species which could be invasive.

There is no Data base of invasive plants in Kazakhstan. We used the list of invasive plants of Eastern Europe (http://www.bookblack.ru/) from which six species (*Amaranthus albus, A. retroflexus, Anisantha tectorum, Atriplex tatarica, Cardaria draba. Puccinellia distans*) are occupy the Caspian coast. Among them *Puccinellia distans* is not invasive plant but natural for salt meadows (together with *P. dolicholepis*). *Anisantha tectorum* is natural component of sand deserts. It can increase coverage in disturbed areas. *Cardaria draba* is not aggressive and does not become dominant in plant communities.

91 species of Novo-Caspian plain are found in DAISIE: Delivering Alien Invasive Species Inventories for Europe (http://www.europe-aliens.org).   Among them are the species that show invasive characteristic in the region: *Lepidium ruderale, Artemisia austriaca, Lactuca serriola, Xanthium strumarium, X.spinosum, Descurainia sophia, Atriplex tatarica, Kochia scoparia.* In anthropogenic habitats are common species of Mediterranean and Eastern Mediterranean areas: *Bassia hyssopifolia, B. sedoides, Climacoptera brachiata, Suaeda altissima, Pseudosophora alopecuroides, Eremopyrum orientale, E.triticeum, Ceratocarpus arenarius, Peganum harmala* as well as some Palaearctic plants: *Euphorbia seguierana, Lepidium latifolium, L.perfoliatum.*

Thus, the flora of Novo-Caspian marine plain is an immigration flora with a low proportion of original features. The reason of this is connected with recent regression of the Caspian Sea. The age of Novo-Caspian marine plain does not exceed more than 400 years, the youngest terrace - 80 years. Alien species comprise of 30.6%. Strong ecological conditions of northern deserts, high salinity of soils and ground water decrease possibility of invasibility for exotic plants.