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THE IMPACT OF BEAVER (CASTOR FIBER) BUILDING ACTIVITY ON ZOOPLANKTON COMMUNITIES DEVELOPMENT IN A MINOR NORTHERN RIVER (R. ISKRA, RYBINSKOE RESERVOIR BASIN)

A.V. Krylov, N.A. Zavjyalov

Summary

Beaver's building activity was shown to promote changes in the hydrological regime and zooplankton development in the river studied. Newly created mosaic structures with the effect of "pocket with the hole" were found to influence plankton inhabiting below situated places. As the time goes, the plankton of beaver ponds becomes more and more specific. Features of similarity with the initial stages of response characteristic to the anthropogenic eutrophication can be seen, such as: increasing quantitative and qualitative characteristics of the communities and domination of drifting primary filtrators and euryphages.

SMALL MAMMALS OF MINOR RIVER VALLEY HABITATS IN THE FOREST ZONE OF EUROPEAN RUSSIA

V.Yu. Dubrovsky

Summary

On the basis of small mammals record in minor river valley habitats and on the flatin-terfhive made in six points of European Russia forest zone (Tver, Moscow, Vladimir, Kaluga and Bryansk regions) it was shown that the number of rodents and insectivores was always higher in valley habitats than on watershed areas. The biodiversity was also greater there. The reason of this could be the high mosaicism of fluvial plain habitats, caused by a markedly different moisture regime in fluvial plain facies. It is supposed that minor river valley often serve as reservations and survival stations during the disadvantageous years and seasons.

COMMON SHREW (*SOREX ARANEUS*) IN MOSCOW

E.V. Karasyova, A.Yu. Telitsina, N.V. Stepanova

Summary

The investigations at undeveloped areas of Moscow were carried out in 1967—1996. 1 528 804 days-traps were observed (totally) and 6 450 common shrews were collected. This species is very common in Moscow. Its favorite habitats are woods, parks, dry meadows, bushes of ruderal plants. The animal was not found to be inclined to synanthropism.

PASSAGE OF LITTLE BUSTARD (*OTIX TETRAX* L.) IN KALMYKIA

A.I. Bliznyuk

Summary

The population dynamics of little bustards, migrating through Kalmykia, had been recorded during 1970—1996. Data of that records, provided at the present paper, show the population state of little bustard in Russia. A decrease in bustard population took place from the beginning of 1970s till the middle 1980s and was followed by a marked rise. According to the absolute records, there were at least 50 thousand birds passing through the studied area in April, 1991, and 75 thousand — in October, 1992. It was proposed to organize two so-called key territories in Kalmykia (KOTR) in order to keep track of the bustard population density in Kalmykia.

CARABID (*COLEOPTERA, CARABIDAE*) FAUNA OF REPETEK NATURE RESERVE

Jan Farkac

Summary

19 new species of carabids of Repetek Nature Reserve are recorded in this paper (Turkmenistan: Karakum desert). At the present time 54 species of ground beetles (Carabidae) are known from the territory of Repetek Reserve (35 species recorded in literature [2] and 19 species recorded in the above paper — new for Repetek Nature Reserve, marked with asterisk): *Acupalpus flaviceps* Motsch.*, *Agatus amoenulus* Sem., *Amara cardionota* Putz.*, *A. fedtschenkoi* Tschitsch., *A. saxicola* Zimm., *A. tescocola* Zimm., *Anisodactylus pseudoaeneus* Dej., *Anthia mannerheimi* Chaud., *Bembidion niloticum hamatum* Kolen., *B. normannum* Dej., *B. quadripla-giatum* Motsch., *B. quadripustulatum* s.str. Serv., *B. tenellum pseudoplaga* Net., *B. varium* Oliv., *Calosoma algiricum* Geh., *C. deserticola* Sem., *C. auropunctatum dzungaricum* Gebl.*, *C. oliverti* Dej., *Chlaenius spoliatus* s. str. Rossi*, *Cymindis accentifera* Zoubk., *C. andreae* Men., *C. capito* Kryzh. et Emetz, *Daptus vittatus* Fisch.*, *Dicheirotrichus ustulatus* Dej.*, *Discoptera komarovi* Sem., *D. eylandi* Sem., *Dyschirius chalceus* Er., *D. cylindricus transcaspius* Sem., *D. euphraticus* Putz., *D.* cf. *nitidus* Dej.*, *D. syriacus* Putz., *Dyschiriodes mesasiaticus* Fedorenko*, *Eremosphodrus dvorshaki* Casale et Vereschagina*, *E. rotundicollis* Rtt., *Glycia flaviceps* Sols., *Hemiaulax mono* Men., *Machozetus lehmanni* Men., *Megacephala euphratica armeniaca* Castel.*, *Metabletus fuscomaculatus* Motsch., *M. obscuroguttatus* Duft., *Omophron rotundatum* Chaud., *Paratachys centriustatus* Rtt.*, *Pogonus submarginatum* Rtt., *P. virens* Man., *Scarites angustus* Chaud., *S. bucida* Pall., *S. subcylindricus* Chaud.*, *S. terricola* Bonelli, *Syntomus fuscomaculatus* Motsch.*, *Tachys angustulus* Rtt., *Taphoxenus psammophilis* Znoiko, *T. subcylindricus* Sem., *Trechus quadristriatus* Schr., *Trichocellus discicollis* Dej.

EVIDENCE OF SEASONAL DIVERGENCE BETWEEN PLANTS OF ALPINE COMMUNITIES: SHADING EXPERIMENT IN *GERANIUM GYMNOCAULON — HEDYSARUM CAUCASICUM* GRASSLAND

A.A. Aksenova, V.G. Onipchenko

Summary

The effects of shading on *Geranium gymnocaulon* and *Hedysarum caucasicum* dominated alpine grassland have been investigated during three-year-long experiment.

There were four variants of the experiment, namely: (I) shading for the first half of the vegetation season (July); (II) shading for the second half of the vegetation season (August); (III) — shading for the entire vegetation season (July—August); (IV) — no shading (control).

The response of the particular species have been studied by measuring of the shoot density changes.

The significant reduction of the biological diversity has been observed in variant (III) of the experiment. *Hedysarum caucasicum, Leontodon hispidus* and *Phleum alpinum* were found to be the most sensitive to shading. The most tolerant ones were *Luzula multiflora, Carex artrata* and *Geranium gymnocaulon*. The different response of particular species in (I) and (II) variants may result from their seasonal divergence.

The abundance of *Gagea fistulosa* increased dramatically in all three shading variants, especially in the variant (II).

SEED REPRODUCTION OF PLANTS IN NATURAL ASSOCIATIONS: BIOMORPHOLOGICAL BASIS OF FERTILITY FORMATION, FACTORS AND WAYS OF ITS REALIZATION

V.N. Egorova

Summary

According to the research, in the evolutionary process each species develops its level of reproductive ability (potential, conditional-real, real) in correlation with a set of other biological and morphological characteristics. Every species has its own correltivc complex of these properties.

Quantitative characters of all elements of plant reproductive ability vary significantly from year to year depending upon the influence of exogenous (actors, such as: weather conditions, environment factors, anthropogenic impact, etc. Year-to-year fluctuations are caused by the plasticity of reproductive structures and other properties of' plants, namely: inflorescence dimensions, disposition of flowering and pollination, fructification, functioning of consorses.

Every year plants of a coenopopulation realize their reproductive properties and form a po-

tential reserve of diaspores in order to self-support. We characterize this reserve by the number of healthy seeds per a unit of coenosis area. In natural associations the effectiveness of seed reproduction is determined by exogenous factors, among which phytocoenotic situation seems to be critical, because finally the seed reproduction level in plant communities depends on its action.

COMPARATIVE CARPOLOGY OF SOME EPIMEDIOIDEAE (BERBERIDACEAE)

A.P. Melikian, A.A. Chernykh

Summary

Epimedioideae is the most primitive group in the family *Berberidaceae* and gynaeceum structure in members of this subfamily is close to pro-ranalian ancestor. We suppose that gynaeceum of *Epimedioideae* and *Berberidaceae* as a whole is pscudomonomeric. Besides, the features of fruit morphology and anatomy can be used for delimitation *Epimedium* and *Vancouveria*.

ON THE MORPHOLOGY OF EUROPEAN SPECIES OF *ZANNICHELLIACEAE, RUPPIACEAE, POTAMOGETONACEAE* AND *ZOSTERACEAE*

E.V. Mavrodiev, D.D. Sokoloff

Summary

Leaf structures, the flower arrangement pattern and floral morphology in European *Zannichelliaceae*, *Ruppiaceae*, *Potamogetonaceae*, and partially *Zosteraceae* are discussed. A key to genera based on the characters of vegetative morphology is presented. The leaf structure of *Potamogeton indicus* (Singh, 1964) is suggested to contradict Arbrer's (1923) explanation of nature of squamulae intravaginales in *Helobiae*. A special study does not support the data by Dahlgren et al. (1985) and Takhtajan (1987) on the monopodial branching of rhizome in *Ruppia*. Irmisch's (1851) description of flower arrangement in *Zannichellia* and *Ruppia* is supported. The nature of flower in *Alismatidae* is discussed. The comparative analysis of the data on floral development (Singh & Sattler, 1972, 1974; Posluszny & Sattler, 1973; Posluszny, 1981) reveals that in most *Alismatidae* the tepal primordia are closely related to the stamen ones, and in this respect the flowers of *Alismatidae* appear to be similar. The helobial flower is supposed to be an integrated structure which can be easily recognized in the majority of taxa. The relationships between the typical perianth, the abaxial outgrowth on the stamen of *Ruppia* and the membranaceous envelope of *Zannichellia* flower are discussed. Both abaxial outgrowth and membranaceous envelope possess a lot of perianth's features and, if the relative position of tepals and carpels in the flower is studied, they should be treated as tepals. In *Potamogetonaceae* s. str. the tepals, as well as the stamens, are found to be alternating with carpels; in both *Ruppiaceae* and *Zannichelliaceae* they are initiated in front of carpel primordia. It is suggested, that the different position of stamens (in relation to carpels) in *Ruppia* and *Potamogeton* does not result from different ways of reduction of two-whorled androecium.The basic dissimilarity between flowers of *Ruppia* and *Potamogeton* is the different orientation of carpels, not the degree of tepals and androecium reduction. Although the flowers of *Althenia*, *Zannichellia* and *Ruppia* organized much simpler than those of *Potamogeton*, it is difficult to treat them as a reduction of a flower similar to that of *Potamogeton*, and they are shown to be closely related with flowers of less specialized *Alismatidae* (e. g., *Triglochin*).

SELF-POLLINATION IN SPECIES OF *POLYGONUM* SUBSECTION *POLYGONUM*

O.V. Yurtseva

Summary

Pofygonum aviculare L., *P. arenastrum* Boreau and *P. calcatum* Lindman usually have contact autogamy in open flowers, but self-pollination in flower buds takes place as well. In the first case flowering starts with opening of the perianth and anthers — first of the inner circle, then of the outer one. At first an ovary is small and hidden at the bottom of hypanthium, filled with nectar; small green stigmas are located below anthers. 0,5—2 days later the ovary enlarges and protrudes out of the hypanthium. Swollen stigmas reach the level of inner circle of anthers, standing between them and contacting with anthers. If self-pollination fails in the open flower, it occurs when the perianth is closing. Flowering lasts for 1—5 days. Sometimes larvae and imagos of thrips, aphids, psylla and small

beetles promote self-pollination. Outbreeding seems to be extremely rare, but still possible. Self-pollination in flower buds Lakes place at the same plant in summer time after a week of hot sunny weather and in autumn. The ovary overgrows anthers inside a flower bud while its flattened stigmas direct down being tightly contacted with the anthers. The flower has shorter pedicels and greenish perianth lobes. It is hidden inside an ochrea until growing fruit bursts it. Both open flowers and flower buds contain 78—96 % of fertile pollen grains and produce fertile seeds. Regardless to type of flowering short fruits with thick brown pericarps appear in July—September and long fruits with thin yellow-green pericarps emerge in September—October. Castration in flower buds did not result in fruit forming. Self-pollination seems to be the main pollination type in the group.