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VARIATION AND CORRELATION STRUCTURE
OF THE CHECK TEETH OF THE PRZEWALSKI HORSE
(*EQUUS PRZEWALSKII*; MAMMALIA: EQUIDAE)

N.N. Spasskaia. I.Ya. Parlinov

Summary

Individual variation, several forms of group variation (differences between wild and domesticated breeds, ages, and sexes), and correlations structure of the check teeth described by 30 measurements were studied in the sample of 60 specimens of the Przewalski horse (*Equus przewalskii*). The characters were included in the analyses both in the original and in several secondarily transformed (their logarithms and residuals calculated from regression and dispersion analyses) forms. Several standard uni-, bi-, and multivariate techniques were employed.

Two important features of individual variation are revealed, namely higher variation of the lower teeth widths and especially of the third molar traits.

Correlation structure is pretty simple and apparent, with several correlation pleiads clearly identifiable. The basic portion of the toothrow (P3 — M2) is not divided into premolar and molar sections and could be considered as a morphogenetic whole. The M3 traits constitute separate pleiad, while those of P2 are just weakly correlated with both themselves and other traits. The dental lengths and widths are not mutually correlated, each group forming its own pleiad. At last, a separate pleiad is formed by paracone lengths, which could make correlation analysis one of the tools for analyzing serial homologies of the complex mammal tooth crown.

All forms of group variation cover about 28 per cent of the total morphological disparity. Age variation is most and sex difference is least pronounced. Domestication and age effects are quite similar in respect to the characters involved, while sex difference is more specific in this respect. The characters forming particular correlation pleiads reveal specific reactions to various forms of group variation.

Neither logarithm transformation nor regression residuals eliminate the size factor in the horse teeth. It is shown that the variance component analysis supplemented with Monte-Carlo method could be used to estimate portions of particular forms of group variation within the overall disparity defined by a set of morphometric traits. Correlation structure could be effectively analyzed by using clusterization supplemented with subsampling procedure.

THE ANALYSIS OF REACCLIMATIZATION OF THE STEPPE MARMOT
(*MARMOTA BOBAK* (RODENTIA, SCIURIDAE)) IN UKRAINE

V.A. Tokarsky

Summary

About 11 thousand of steppe marmot individuals were settled in 1986—2005 at sixteen regions of Ukraine. 57% from common number of animals (more than 6 thousand individuals) was settled in the Kharkov region. In this region, as a rule, the new marmot settlements were created by 3-multiple delivery of small marmot groups with an interval per two — three years. The reasons of both success, and failures of this reacclimatization process are considered. The changes of the steppe marmot areal caused by the completed reacclimatization are examined. The given data become a starting point for (his objective deferred estimation of results of the steppe marmot reacclimatization in Ukraine.

PART CLADOCERA IN UTILIZATION
OF PHYTOPLANKTON PRIMARY PRODUCTION
AND SELF-PURIFICATION OF THE CURONIAN LAGOON

S. V. Aleksandrov, A.S. Semenova

Summary

The Curonian Lagoon is an enclosed shallow, freshwater lagoon, connected to the Baltic Sea by narrow strait. At present the Curonian Lagoon may be characterized as a hypertrophic water basin, where hyperblooms of Cyanobacteria are observed. By results of researches of 2001 and 2002 features of seasonal dynamics of species composition, abundance, biomass, filtration activity and ration zooplankton of the hypertrophic water basin, and also its part in self-purification and utilization of phytoplankton primary production are considered. Cladocera dominate in zooplankton community, they average 49% of abundance, 90% of biomass and consume 86% of ration of zoo-plankton filtration

organisms. Filtration activity Cladocera promotes self-purification of Curonian Lagoon. The Curonian Lagoon is filtered by zooplankton 44—63 times from May till October, contribution of Cladocera achieves 90%. For this period Cladocera can consume up to 16—19% of phytoplankton primary production, thus of 6—8% of primary production is transformed in secondary production and it can be used predatory invertebrates and fishes.

SOME QUANTITATIVE DATA ON DISTRIBUTION OF *PSEUDOCALANUS MINUTUS* (KRØYER) IN THE BARENTS SEA

E.L. Orlova, V.N. Nesterova, T.A. Prokhorova, G.B. Rudneva

Summary

Presented are the results of study into some biological and quantitative characteristics of the Arctic copepod *Pseudocalanus minutus* (Krøyer) from the Barents Sea central latitudinal zone (the 1980—1990s). This species high abundance in the area mentioned, the prevalence in layers to 100 m. irregular development in different areas of latitudinal zone depending on temperature conditions, daily vertical migrations by age, length of the vegetation period (May—September), high abundance of mature females (sometimes males and eggs of *P. minutus*) and younger copepodites are given as characteristic properties. The latter serves as a ground to assume that a reproductive cycle of *P. minutus* is the same of the Barents and White Seas. Poor transfer of *P. minutus* from the south (the Norwegian Sea) allows considering this species as an endemic of the central latitudinal zone.

CENTRAL-FOREST RESERVE: NATURAL- AND ANTHROPOGENIC-CAUSED VEGETATION DYNAMICS IN HOLOCENE

M.B. Nosova

Summary

For the first time in the Central Forest Reserve detailed palaeopalynological investigation was carried out. Pollen analysis included determination of nonarboreal pollen grains and was supported by radiocarbon dating. Also historical, archaeological and literary data was used for more precise palaeoreconstructions. The degree of the anthropogenic impact in the past was estimated by different methods. The time of the beginning of the anthropogenic transformations in the vegetation was approximately estimated as 1800 years ago.

PUTATIVE PHYLOGENETIC RELATIONS OF THE GENUS *HARMSIOPANAX* (ARALIACEAE) BASED ON THE DATA OF COMPARATIVE CARPOLOGY

A.I. Konstantinova

Summary

Harmsioplanax, a small (3 species) genus distributed in Malesia, belongs to the group of genera of undefined position within the order *Araliales*. Fruits of the representatives of this genus are currently very poorly investigated, and since carpological traits are proven to be of great value for various taxonomic and systematic revisions of *Araliales*, the subject of our study appears to be of utmost importance. It has been shown that *Harmsioplanax* species, although sharing a common pattern of pericarp histology structure, still considerably differ from each other in a number of carpological features (mericarp outline from the commissural side, presence of «hydrocyte parenchyma» complexes, presence and type of tannin-containing cells location, etc.). Thus, the advisability of treating *H. ingens* as a separate species (as stated by W.R. Phillipson (1973)) has been confirmed. A conclusion about possible close relationship between all three so far known *Harmsioplanax* species and *Hydrocotyle* circle of affinity was made on the basis of the comparative morphological and anatomical study as well as the analysis of other data on the genus from all available literature sources. There are numerous carpological traits shared by *Harmsioplanax* and *Hydrocotyle*, such as: presence of groups of specific pericarp tissues (tanniferous cells, "hydrocyte parenchyma"), location and shape of calcium oxalate crystals, absence of ventral vascular bundles in mature fruits, etc. Even though the system of the order *Araliales* is still being worked at by professionals from various schools and fields of science, now one

can affirm that *Harmsioplanax* is one of many «basal» branches of the phylogenetic tree, which has cleft off the main evolutionary stem rather early. Therefore, even if it is not going to be included in *Hydrocotylaceae*, still, it will for sure adhere to an «intermediate» taxon between *Araliaceae* and *Umbelliferae* in the nearest vicinity of *Hydrocotyle*.

EFFECTS OF SOME CLIMATIC FACTORS
ON PHENOLOGY OF WHITE BIRCH (*BETULA PUBESCENS*)
ON THE KOLA PENINSULA

E.V. Shutova, N.G. Berlina, T.V. Filimonova, L.A. Moskvicheva

Summary

The effects of temperature and precipitation on phenology of the White Birch (*Betula pubescens* Ehrh.) during 1964—2003 are discussed. In the second half of the 20 century the small increasing of annual temperature was registered everywhere on the Kola Peninsula. It was the most important in 1980—2000 (the trends for Kandalaksha, Monchegorsk and Kirovsk were 0.57—0.64 degrees for 10 years) especially in winter seasons. Sum of winter precipitation increased in seaside (on 60%) and central (on 13%) areas of Peninsula and decreased in mountain sites (on 30%). The frostless period increased because of its earlier beginning and later finishing. The beginning of the vegetation period shifted later because of longer snowmelt. On the most part of the Kola Peninsula the first bud bursting («greening») of birch has not changed for 40 years, only in some places it starts later. In spite of the end of the vegetation period has become later in last decades, leaves yellowing and leaves off start earlier because of earlier autumn temperature decreasing.

BEHAVIOUR OF WHITE WATER-LILY FLOWERS
IN DIFFERENT PHOTOPERIODS

P.A. Volkova, E.Yu. Peskova, A.B. Shipunov

Summary

Observations on the circadian behavior of white water-lily (*Nymphaea candida* Presl.) flowers were conducted in natural habitat. The observations were made during different photoperiods in the Middle Russia (natural photoperiod and permanent darkness) and in the Northern Karelia (polar day). We have revealed that: (1) degree of flower openness demonstrates circadian rhythmicity both in Middle Russia and in the Northern Karelia, while the degree of flower submergence remains almost constant, (2) typical for Middle Russia flower behaviour also occurs during the polar day, (3) deviations from natural rhythms in the absence of dark period are less prominent than in the absence of light period. Movements of water-lily flowers optimize pollination efficiency.

SCIENTIFIC COMMUNICATION

ON STUDY OF CYCLE AND PREIMAGINAL STAGES
OF *LASIOMMATA PETROPOLITANA* (F., 1787) (LEPIDOPTERA, SATYRIDAE)
ON THE EUROPEAN NORTH-EAST OF RUSSIA

A.G. Tatarinov, O.I. Kulakova

Summary

The life cycle and preimaginal stages of *Lasiommata peiropolitana* (F.) on the European North-East of Russia is presented. The article carries dates about ovum, larvae and pupa, food-plant and flight period of this species in taiga zone of the Russian plain and the Northern Ural.

THE DYNAMICS OF AIRBORNE POLLEN
IN THE PERIOD OF PLANT VEGETATION

N.A. Elkina, E.F. Markovskaya

Summary

This article presents the results of aeropalynological observation in Petrozavodsk (Karelia) carried out with a gravimetric method during April — September 2005—2006.

The pollen grains of 11 woody and 6 herbaceous taxa, which may be the cause of pollinosis were recorded.

The time frames of the pollination period of these plants have been stated. The calendar of pollination of allergic plants on the territory of Petrozavodsk was presented.

METHOD PROTECTION GRASSY VEGETATION
OF THE KHINGAN STATE RESERVE

S.G. Kudrin

CRITIQUE AND BIBLIOGRAPHY

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