International Journal of Ecosystems and Ecology Science (IJEES)
https://doi.org/10.31407/ijees ISSN: 2224-4980

Abstract
Volume 14, issue 4, 2024
https://doi.org/10.31407/ijees14.4

Vol. 14 (4): 1-12 (2024)

THE EFFECT OF FRAGMENTED RAINFOREST VEGETATION ON THE ADAPTATION STRATEGY OF FRANCOLIN BIRDS (*FRANCOLIN BICALCARATUS*) IN BANGEM, SOUTHWEST REGION, CAMEROON

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Received June 2024; Accepted August 2024; Published October 2024;

DOI: https://doi.org/10.31407/ijees14.401

ABSTRACT

Habitat fragmentation is a growing threat to many species globally, particularly those living in tropical rainforests. Francolins are an integral part of the tropical rainforest ecosystem in Cameroon, playing important roles as seed dispersers, insect and small prey consumers, and prey for larger predators Their presence helps maintain the balance and diversity of the forest food web, hence their conservation in Cameroon is crucial for maintaining the ecological balance, supporting local livelihoods, preserving cultural heritage, and contributing to the sustainable management of the country's valuable rainforest resources. However, the study investigates the impact of fragmented rainforest vegetation on the survival strategy of the Francolin bird (*Francolin bicalcaratus)* in Bangem region. The study was conducted over a 5-month period in two forest sites with varying levels of fragmentation, a contiguous primary forest, and a highly fragmented edge habitat. Data was collected through direct observations during the first 15 days of each month. The results indicate that Francolin birds exhibit significant behavioral adaptations in response to forest fragmentation. Nonetheless, fragmented rainforest vegetation significantly associated with aggregation of francolin birds r=0.650 P=0.000, climatic conditions r=0.514 P=0.000, and food-type X^2=59.312 df=2 P=0.000 respectively. The conversion of rainforest habitats into a mosaic of forest fragments and cropland has had a significant impact on the aggregation and distribution patterns of Francolin birds (*Francolin bicalcaratus*) in Cameroon's Southwest Region. Besides, there was a significant relation between Fragmented rainforest vegetation and the hourly day-period X^2=66.086 df=2 P=0.000. Francolins are known to have distinct activity patterns throughout the day, with specific times of the day when they are more active in foraging, breeding, and other behaviors. More so, Anthropogenic activity and seasonal changes associated significantly X^2=68.159 df=1 P=0.000. Furthermore, the social behaviour of francolins and their vocalization frequency revealed a significant link X^2=32.417 df=6 P=0.000. The study highlights the remarkable plasticity of Francolin birds in adapting to habitat changes. However, the long-term viability of these survival strategies under ongoing deforestation and fragmentation remains uncertain. These findings underscore the importance of maintaining large, contiguous forest tracts to support the full range of Francolin behavioral and ecological adaptations.

Keywords: Francolin birds, Habitat fragmentation, Primary Forest, Survival strategy, Vegetation

International Journal of Ecosystems and Ecology Science (IJEES) **Volume 14, issue 4, 2024**
https://doi.org/10.31407/ijees ISSN: 2224-4980 https://doi.org/10.31407/ijees14.4

Vol. 14 (4): 13-16 (2024)

IMPACT OF HOSTILITIES ON THE ENVIRONMENT OF THE NORTHERN REGION OF UKRAINE

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Received June 2024; Accepted August 2024; Published October 2024;

DOI: https://doi.org/10.31407/ijees14.402

ABSTRACT

The Chernihiv region is located in the north of Ukraine, on the border with Russia and Belarus. Therefore, it has had a significant negative impact and horrific consequences from Russia's military aggression. During the period of the Russian military siege of Chernihiv (37 days), the aggressor state was causing irreparable and catastrophic damage. At the same time, indirect losses may manifest in the coming years and decades and these consequences are unpredictable. And now the enemy fired and destroys the border of the region every day. Undoubtedly, the war had a very negative impact on each component of the environment: phytocenosis, microbiocenosis, zoocenosis, hydrobsein, air, soil. The consequences will be long -term and will not only be local but also global.

Key words: impact of hostilities, environment, northern region of Ukraine.

Vol. 14 (4): 17-24 (2024)

ECOLOGICAL CONSCIOUSNESS AND SUSTAINABLE DEVELOPMENT: BRIDGING ENVIRONMENTAL EDUCATION WITH GREEN ECONOMY PRACTICES

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Received August 2024; Accepted September2024; Published October 2024;

DOI: https://doi.org/10.31407/ijees14.403

ABSTRACT

This article explores the core discourses shaping the concept of sustainable development (SD), with an emphasis on its multidimensional nature. The study identifies seven key discursive axes: environmental, economic, social, political, prognostic, ethical, and developmental sustainability. The analysis highlights the pivotal role of ecological consciousness, advocating for the integration of environmental education to promote sustainable practices across various societal groups, including youth and professionals. A central argument is the need for a holistic approach that considers the biosocial unity of humans, balancing the natural and social dimensions of human existence. The study further examines the relationship between natural capital and development, endorsing a transition to a "green" economy focused on resource conservation and minimizing environmental impacts. The ethical dimension of SD, particularly the responsibility toward future generations, is emphasized as crucial for sustainable decision-making. The paper calls for further research on the efficacy of environmental education and the practical implementation of SD policies across different sectors and regions. Acknowledging the limitations of current data and the challenges of incorporating ethical principles into policy frameworks, the article provides a comprehensive philosophical and practical foundation for understanding sustainable development and addressing its future challenges.

Keywords: Environmental consciousness, Natural capital, Ecological ethics, Biosocial unity, Sustainability education, Political sustainability

International Journal of Ecosystems and Ecology Science (IJEES) **Volume 14, issue 4, 2024**
https://doi.org/10.31407/ijees ISSN: 2224-4980 https://doi.org/10.31407/ijees14.4

Vol. 14 (4): 25-30 (2024)

EPIDEMIOLOGIC DATA OF COVID-19 IN CHILDREN

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Received August 2024; Accepted September2024; Published October 2024;

DOI: https://doi.org/10.31407/ijees14.404

ABSTRACT

Objective: This study aims to provide a comprehensive understanding of the epidemiology, clinical presentation, and risk factors associated with hospitalization in pediatric COVID-19 cases. Material and Methods: This cross-sectional study included 663 children aged 0-14 who presented to the Emergency Department of the Pediatric Hospital in Elbasan, Albania, between April 2020 and September 2024, with suspected COVID-19 symptoms. Sociodemographic and clinical data were collected, including symptomatic status, source of infection, underlying conditions, and disease outcomes. Multivariable logistic regression analysis was used to identify risk factors for hospitalization. Results: The mean age of children was 6.8 years, with 88.7% symptomatic and 11.3% asymptomatic. Among symptomatic individuals, the most commonly reported symptom was fever, affecting 65.2% of the population. Upper respiratory symptoms were present in 44.5%, while 3.6% experienced lower respiratory symptoms. The majority (79%) experienced mild illness. In the multivariable analysis, infants <1 year had a significantly higher likelihood of hospitalization compared to children aged 5-9, (OR) of 1.83 (95% CI: 1.11–3.98, p=0.029). Also, lower respiratory symptoms, OR of 2.1 (95% CI: 1.13–5.31, p =0.012) and children with underlying conditions were at higher risk of hospitalization, OR of 2.7 (95% CI: 1.15–7.40, p=0.001). The majority of children (97.7%) recovered fully, with only 2.3% experiencing post-acute complications. Conclusion: This study emphasizes the importance of monitoring vulnerable subgroups, such as infants and those with respiratory symptoms or underlying conditions, to prevent severe outcomes and guide public health interventions.

Keywords: Pediatric COVID-19, Epidemiology, Risk factors, Hospitalization

International Journal of Ecosystems and Ecology Science (IJEES) **Volume 14, issue 4, 2024**
https://doi.org/10.31407/ijees ISSN: 2224-4980 https://doi.org/10.31407/ijees14.4

Vol. 14 (4): 31-40 (2024)

APPLICATION OF IPS INDEX BASED IN EPILITHIC DIATOMS and PHYSICO CHEMICAL DATA FOR EVALUATION OF WATER QUALITY

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Received September 2024; Accepted October 2024; Published November 2024;

DOI: https://doi.org/10.31407/ijees14.405

ABSTRACT

The studies conducted in this research work emphasizes on the use of Sensitive Pollution Index (IPS) based on epilithic diatom community towards evaluation of water quality in Shkodra Lake. Benthic diatoms are the groups of diatoms, which are less vulnerable to disturbances be they of a physical, chemical or other nature thus making the convenient indices for the ecosystem under consideration. Benthic diatoms were gathered from five sampling sites situated in proximity to the shores of Shkodra Lake, including: Shterbeq (Sh1), which is close to the Montenegro border Kompleksi Hysaj (Sh2), Vraka (Sh3), Shiroka (Sh4) and Zogaj (Sh5). The findings reveal that the water quality is not uniform over the space meaning that there are some human socio-economic activities and some natural factors that are affecting the ecological state of the lake. In total, two field trips were conducted in Decembre 2023 and May 2024. It is often found that, as compared to diatoms, chemical indicators of water quality are of less reproductive value. Nevertheless, because their communities can assimilate rising concentrations of both organic as well as inorganic chemical constituents, they are often preferred for in situ biomonitoring. This study shows that some significant shifts in species composition can be detected in relation to changes in dominance patterns of specific species from Shkodra Lake's aquatic communities. The identified dominant species include a total of 92 diatom species, including most dominant species like as: *Cocconeis placentula* var. *lineata* (Ehrenberg) *Van Heurck, Cymbella affinis* Kützing *agg., Eunotia glacialis* F. Meister 1912, *Gomphonema olivaceum* (Hornemann) Brébisson var. *olivaceum, Cyclotella ocellata* Pantocsek, *Aulacoseira granulata* (Ehrenberg) Simonsen, *Fragilaria incognita* E. Reichardt, *Gomphonema truncatum* Ehr., *Nitzschia dissipata* (Kützing), etc. About 88 species belong pennate diatoms and four belong centric diatoms. The proceedings of this research include the application of the IPS index and water quality assessment for different locations in Shkodra Lake, proving the detail of the water quality assessment conducting by mean of the IPS index and the crucial role diatoms play in monitoring freshwaters (Prygiel J. and Coste M, 1993; Miho et. al., 2010)). In our study, the IPS (sensitive pollution index) has been calculated also to show the connections between BOD, COD, total and P determination., Nitrates, Nitrites, pH, etc. The Sensitive Pollution Index fluctuated between moderate and very good quality but only Shiroka station was classify as Poor quality.

Keywords*:* Shkodra lake, karstic lake, epilithic diatoms, Sensitive Pollution Index, water quality.

International Journal of Ecosystems and Ecology Science (IJEES) **Volume 14, issue 4, 2024**
https://doi.org/10.31407/ijees ISSN: 2224-4980 https://doi.org/10.31407/ijees14.4

Vol. 14 (4): 41-48 (2024)

RELATIONSHIP OF DIATOM COMMUNITIES TO CHEMICAL VARIABLES IN BUTRINTI LAGOON IN ALBANIA

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Received September 2024; Accepted October 2024; Published November 2024;

DOI: https://doi.org/10.31407/ijees14.406

ABSTRACT

Lagoons are distinctive ecosystems where river and sea waters converge, supporting a distinctive biodiversity in the brackish waters. Like all aquatic ecosystems, lagoons are vulnerable to natural and anthropogenic factors that impact physicochemical variables and aquatic biota, particularly those that are environmentally sensitive, such as phytoplankton. Aquatic organisms that are susceptible to changes in water chemistry, pollution, and trophic state, like diatoms, are utilized for environmental assessment. The Butrinti lagoon is significant within the southern region of Albania. Consequently, this study was initiated with the objective of evaluating the water quality based on chemical variables and diatom assemblages. The chemical parameters and trophic index of the Butrinti lagoon waters indicate a trophic status ranging from mesotrophic to eutrophic. This finding aligns with the trophic classes of diatoms, which were observed to range from mesotrophic to eu-polytrophic. Additionally, the results revealed the presence of 42 distinct species of diatoms, comprising 15 genera of pennate diatoms and 3 genera of centric diatoms.

Key words: Butrinti lagoon, trophic status, chemical variables, diatom's assemblages

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PREDICTIVE MODELING OF HOUSING CONSTRUCTION IN RUSSIA: INSIGHTS FROM ARIMA AND LOCAL REGRESSION ANALYSIS

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Received September 2024; Accepted October 2024; Published November 2024;

DOI: https://doi.org/10.31407/ijees14.407

ABSTRACT

The purpose of this work is to identify the fundamental factors influencing the dynamics of residential real estate construction in order to further predict the population's housing supply. The problem that analysts face is the relatively short time series with annual data characterizing this market. Earlier methodological approaches to forecasting short-term series suggested the use of exponential moving averages, Holt-Winters modeling, ARIMA, LSTM neural networks, LOESS and others, mainly in Europe and the USA. In this study, the authors present the results of forecasting the dynamics of residential real estate construction in Russia using the ARIMA model, as well as a variety of series decomposition (STL) methods and taking into account all the rules of the Holt-Winters model.

Keywords: Housing market, regression analysis, short series, indicator system.

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DIGITAL AXIOLOGY IN THE EDUCATIONAL ENVIRONMENT: FEATURES OF THE FORMATION OF DIGITAL BEHAVIOR OF YOUNG PEOPLE

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Received September 2024; Accepted October 2024; Published November 2024;

DOI: https://doi.org/10.31407/ijees14.408

ABSTRACT

The purpose of the work is to analyze the transformation of the digital behavior of young people in the educational environment through the prism of the axiological approach. It is substantiated that the main problematic point of digitalization from an axiological perspective can be considered its generation of moral relativism, which results in moral irresponsibility, lack of initiative and permissiveness. The historical experience of university education in modern conditions often turns out to be unaccounted for: the value and worldview component of the educational process and its orientation towards the formation of human spirituality are lost. In this regard, an axiological analysis of the digital socialization of youth in the educational environment unfolds along with the identification of the historical trend of transformation of university education. The novelty of the study lies in the conclusion that education can act in this case as an institution for the rule-making of digital ethics, as well as the transmission of national values in the context of a "global digital village". The basis for this conclusion is an appeal to historical models of universities in terms of identifying their potential. The work contributes to the formation of a new disciplinary field – digital axiology.

Keywords: Axiology, Digital Behavior, Digital Socialization, Education, Digital Ethics, University, Identity.

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OCCURRENCE OF HEAVY METALS IN THE BUTRINTI LAGOON ECOSYSTEM IN THE SOUTH OF ALBANIA

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Received September 2024; Accepted October 2024; Published November 2024;

DOI: https://doi.org/10.31407/ijees14.409

ABSTRACT

The Butrinti Lagoon, located in southern Albania, is a vital ecosystem recognized for its rich biodiversity, including the mussel species *Mytilus galloprovincialis*. As a widely consumed bivalve mollusc, the cultivation of this species is crucial, and assessing heavy metal contamination in their tissue is essential for ensuring food safety. This study aims to evaluate the presence of heavy metals in the food chain within the Butrinti Lagoon. Four heavy metals-copper (Cu), chromium (Cr), cadmium (Cd), and lead (Pb), were analyzed in soil, sediment, water, and mussel samples. The findings revealed that heavy metal concentrations in soil samples followed the order Cr > Cu > Pb > Cd, with Cr showing the highest value (378.01 mg/kg). In sediment, the metal concentrations were ranked as Pb > Cu > Cr > Cd, with Pb having the highest concentration (64.23 mg/kg). Similarly, in water samples, Pb was the dominant metal (1803 µg/L), with the order being Pb > Cd > Cu > Cr. Mussel samples also exhibited the highest concentration of Pb, followed by Cr, Cu, and Cd. The consistent presence of Pb at elevated levels across sediment, water, and mussel samples suggests a strong correlation between these matrices, potentially due to the release of Pb from sediments into the water and its subsequent absorption by mussels.

Key words: Heavy metals, *Mytilus galloprovincialis*, Butrinti lagoon, food security.

International Journal of Ecosystems and Ecology Science (IJEES) **Abstract**
https://doi.org/10.31407/ijees ISSN: 2224-4980 **Volume 14, issue 4, 2024**
https://doi.org/10.31407/ijees14.4

Vol. 14 (4): 77-86 (2024)

EVALUATION OF ECOLOGICAL STATUS OF SHKODRA LAKE BASED ON BENTHIC DIATOMS AND MACROPHYTE INDEXES

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Received September 2024; Accepted October 2024; Published November 2024;

DOI: https://doi.org/10.31407/ijees14.410

ABSTRACT

The evaluation of the trophic state of Shkodra Lake is based on biomonitoring, aquatic macrophytes, and diatoms, which are correlated with organic pollution and nutrient enrichment. Five sampling sites were selected in the Albanian portion of Shkodra Lake. In this study, we focused on the correlation between diatom and macrophyte indexes as bioindicators of lake water quality. Both significant organisms demonstrated a response to eutrophication gradients. The growth and distribution of submerged macrophytes are influenced by changes in the nutrient concentrations of their surrounding environment. Conversely, diatoms are capable of absorbing nutrients from both the sediment and the overlying water. Diatoms and macrophytes thus serve as integrators of environmental conditions to which they are subjected, rendering them suitable for use as long-term indicators with high spatial resolution. The Trophic Diatom Index (TIDIA), the Saprobic Index (SI) in accordance with the Macrophyte Index (MI), provides a link between ecological data and management decisions. The dominant species were rigid hornwort (*Ceratophyllum demersum*), (*Potamogeton perfoliatus*) and shining pondweed (*Potamogeton lucens*). These species are associated with moderate to very high nutrient enrichment. The data indicates that the levels of nutrient enrichment and trophic state, as well as the Macrophyte Index (MI), exhibited considerable variation between the Vraka and Shiroka sites. The MI (at Vraka) was recorded at 3.5, and TI_{DIA} value in this site is the highest at 2.5. The water quality oscillated from mesotroph (in Shterbeq), meso-eutroph (in Kompleski Hysaj, Shiroke and Zogaj) to eutroph (in Vraka). Despite the differing assessment approaches, a consensus was reached on the optimal implementation of the WFD to achieve a more favorable ecological status in the long term.

Keywords: Shkodra Lake, Biological monitoring, Diatom Index, Macrophytes Index, Saprobic Index, Nutrients, WFD.

International Journal of Ecosystems and Ecology Science (IJEES) **Volume 14, issue 4, 2024**
https://doi.org/10.31407/ijees ISSN: 2224-4980 https://doi.org/10.31407/ijees14.4

Vol. 14 (4): 87-92 (2024)

COMMENTS ABOUT THE GENETIC DIVERSITY PHENOMENON IN THE FISH COMMUNITY OF LAKE SHKODRA

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Received September 2024; Accepted October 2024; Published November 2024;

DOI: https://doi.org/10.31407/ijees14.411

ABSTRACT

This article presents some scientific comments on the genetic diversity phenomenon appearing in some fish species of Lake Shkodra. The material is taken from various publications that are in the references for some of the species that are included in the list of fish species of Lake Shkodra by Dhora (2020), Maric (2018). In particular, data were obtained on the intraspecific diversity of the most important fish in fishing sector. These phenomena have been commented on by linking them to various ecological factors. The concrete phenomena discovered and commented on in this article are *Alosa agone*, *Carassius gibelio*, *Chondrostoma nassus*, *Cyprinus carpio*, *Leucos basac*, *Perca fluviatilis*, and *Salmo farioides.* The experienced geneticists, who have been missing until now, should be included in studies and monitoring. Maybe it's time to establish special institutions that would contribute to the smooth running of these developments.

Keywords: intraspecific diversity, population, evolution, fish, species, genotypes, phenotypes.

International Journal of Ecosystems and Ecology Science (IJEES) **Volume 14, issue 4, 2024**
https://doi.org/10.31407/ijees ISSN: 2224-4980 https://doi.org/10.31407/ijees14.4

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