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A Systematic Review of Global Warming's Impact on Plant Growth

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Abstract: This review examines how plant phenology and distribution are affected by climate change. Several types of data that may be used to recreate past climates are in favor of climate change. Temperature readings, glacier retreat, melting arctic sea ice, rising sea levels, and global precipitation are the sources of these data. Furthermore, empirical evidence has shown that climate change has a wide range of effects on life as we know it. Climate change primarily affects plant phenological characteristics, such as blooming time, species richness and distribution, and composition of assemblages. In order to adapt to the changing environment, several plant species have adjusted when they leaf out, blossom, and fruit. They have also extended their ranges and become more species rich on alpine peaks. Natural populations may be able to adjust more quickly to climate change with the aid of evolution. Adaptive adaptations may influence a species' capacity to benefit from climate change. Phenotypic plasticity allows plant species to adjust to changing environmental conditions.

Keywords: Plants, Ecosystems, Adaptation

REFERENCES

- [1]. Anon Y & Kazui K (2007) Phenological data series of cherry tree flowering in Kyoto, Japan, and its application to reconstruction of springtime temperatures since the 9th century. International Journal of Climatology 28: 905–914.
- [2]. Bajpai O, Dutta V, Chaudhary LB & Pandey J (2018) Key issues and management strategies for the conservation of the Himalayan Terai forests of India. International Journal of Conservation Science 9(4): 749–760.
- [3]. Bajpai O, Dutta V, Singh R, Chaudhary LB & Pandey J (2020) Tree Community Assemblage and Abiotic Variables in Tropical Moist Deciduous Forest of Himalayan Terai Eco-Region. Proceedings of the National Academy of Sciences, India Section B: Biological Sciences, Online available. [DOI: 10.1007/s40011-019-01161-2]
- [4]. Bajpai O, Kumar A, Mishra AK, Sahu N, Behera SK & Chaudhary LB (2012a) Phenological study of two dominant tree species in tropical moist deciduous forest from the northern India. International Journal of Botany 8(2): 66–72.
- [5]. Bajpai O, Kumar A, Mishra AK, Sahu N, Pandey J, Behera SK & Chaudhary LB (2012b). Recongregation of tree species of Katerniaghat Wildlife Sanctuary, Uttar Pradesh, India. Journal of Biodiversity and Environmental Sciences 2(12): 24–40.
- [6]. Bajpai O, Kushwaha AK, Srivastava AK, Pandey J & Chaudhary LB (2015). Phytosociological status of a monotypic genus Indopiptadenia: A Near Threatened Tree from the Terai-Bhabar Region of Central Himalaya. Research Journal of Forestry 9(2): 35–47.
- [7]. Bajpai O, Pandey J & Chaudhary LB (2017). Periodicity of different phenophases in selected trees from Himalayan Terai of India. Agroforestry Systems 91: 363–374.
- [8]. Beckage B, Osborne B & Gavin DG (2008) A rapid upward shift of a forest ecotone during 40 years of warming in the Green Mountains of Vermont. Proceedings of the National Academy of Sciences of the USA (PNAS) 105: 4197–4202.

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- [9]. Both C & Visser ME (2001) Adjustment to climate change is constrained by arrival date in a long-distance migrant bird. Nature 411: 296–298.
- [10]. Bradley BA, Oppenheimer M & Wilcove DS (2009) Climate change and plant invasion: restoration opportunities ahead? Glob Change Biology 15: 1511–1521.
- [11]. Bruckschen P, Oesmann S & Veizer J (1999) Isotope stratigraphy of the European Carboniferous: proxy signals for ocean chemistry, climate and tectonics. Chemical Geology 161(3): 127–163.
- [12]. Chaturvedi RK & Raghubanshi AS (2014) Species Composition, Distribution and Diversity of Woody Species in tropical dry forest of India. Journal of Sustainable Forestry 33(8): 729–756.
- [13]. Chaturvedi RK & Raghubanshi AS (2016) Leaf life-span dynamics of woody species in tropical dry forests of India. Tropical Plant Research 3(1): 199–212.
- [14]. Chaturvedi RK, Raghubanshi AS & Singh JS (2011) Effect of small scale variations in environmental factors on the distribution of woody species in tropical deciduous forests of Vindhyan Highlands, India. Journal of Botany 2011: Article ID 297097 [DOI:10.1155/2011/297097]
- [15]. Chaturvedi RK, Raghubanshia AS & Singh JS (2012) Effect of grazing and harvesting on diversity, recruitment and carbon accumulation of juvenile trees in tropical dry forests. Forest Ecology and Management 284(2012): 152–162;
- [16]. Chaturvedi RK, Raghubanshia AS, Tomlinson KW & Singh JS (2017) Impacts of human disturbance in tropicaldry forestsincrease with soil moisture stress. Journal of Vegetation Science 28(5): 997–1007.
- [17]. Chen I-C, Hill JK, Ohlemüller R, Roy DB & Thomas CD (2011) Rapid range shifts of species associated with high levels of climate warming. Science 333: 1024–1026.
- [18]. Colautti RI, Alexander JM, Dlugosch KM, Keller SR & Sultan SE (2017) Invasions and extinctions through the looking glass of evolutionary ecology. Philosophical Transactions of the Royal Society Biological Science 372: 20160031. [DOI: 10.1098/rstb.2016.0031]
- [19]. Colwell RK, Brehm G, Cardelu CL, Gilman. AC & Longino JT (2008) Global warming, elevational rangeshifts, and lowland biotic attrition in the wet tropics. Science 322: 258–261.
- [20]. Dainese M, Kuhn I & Bragazza L (2014) Alien plant species distribution in the European Alps:influence of species" climatic requirements. Biological Invasions 16: 815–831.
- [21]. Doi H & Katano I (2007) Phenological timings of leaf budburst with climate change in Japan. Agricultural and Forest Meteorology 148: 512–516.
- [22]. Donovan LA, Rosenthal DM, Sanchez-velenosi M., Rieseberg LH & Ludwig F (2010) Are hybrid species more fit than ancestral parent species in the current hybrid species habitats? Journal of Evolutionary Biology 23: 805–816.
- [23]. Dukes JS & Mooney H.A (1999) Does global change increase the success of biological invaders? Trends in Ecology & Evolution 14: 135–139.
- [24]. Fei S, Desprez JM, Potter KM, Jo I, Knott JA & Oswalt CM (2017) Divergence of species responses to climate change. Science Advances 3: e1603055. [DOI: 10.1126/sciadv.1603055]
- [25]. Fitter AH & Fitter RSR (2002) Rapid changes in flowering time in British plants. Science 296: 1689–1691. Forest CE (1999) Paleoaltimetry incorporating atmospheric physics and botanical estimates of paleoclimate.

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