

CURRICULUM VITAE

Correspondance:

Office:-

GAJENDRA SINGH, Ph.D.

Scientist-SC

Uttarakhand Space Application Centre

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Research Interests Include

Plant identification, Population study, Forest ecology, Spatial vegetation monitoring and Natural resource management

Current Ongoing Projects

- Space Based Information Support for Decentralized Planning (SIS-DP), Uttarakhand
- Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI)
- Empowering Panchayati Raj Institutions Spatially (EPRIS)
- Survey and Mapping of Medicinal and Aromatic Plants (MAPs) and other RET/NTFPs in alpine regions of Uttarakhand and Developing Uttarakhand-Alpine Information System (UK-AIS)

Work/Research Experience

- **November 2014 onwards. Working as Scientist/Engineer-SC in Forestry and Climate Change Division, Uttarakhand Space Application Centre (USAC), Government of Uttarakhand.**
- **November 2013 to October 2014. Field Coordinator-** G.B. Pant Institute of Himalayan Environment and Development, Kosi, Almora, Uttarakhand in a project entitled “Kailash Sacred Landscape Conservation and Development Initiatives”.

This was a collaborative programme of China, India and Nepal and currently running in the country. Coordination work involved development of various field methodological frameworks for biodiversity assessment, liaisoning with line departments and conducting field data collection work.

- October 2010 to October 2013. **Young Scientist**- Wildlife Institute of India (WII) Dehradun. Worked on: Ecological assessment of Banj oak (*Quercus leucotrichophora*) forest with reference to invasion by Chir Pine (*Pinus roxburghii*) in Kedarnath Wildlife Sanctuary, Western Himalaya.

This work involves the estimation of possible edaphic and plant diversity variation while banj oak forests converts into the Chir pine (*Pinus roxburghii*).

- June 2009-October 2010. **Research Fellow** at Wildlife Institute of India project entitled “Assessment of Banj oak (*Quercus leucotrichophora*) forests and their conservation in Uttarakhand”.

It involved the spatial distribution, status and threats across the districts. The various banj oak patches viz., intact, degraded and intermixing with chir pine (*Pinus roxburghii*) were find out for Uttarakhand state.

- July 2005-July 2007, **Junior Research Fellow** and August 2007-June 2009. **Senior Research Fellow** at Wildlife Institute of India, in a project entitled “Geospatial phyto-resources inventory in the outer fringe of Kedarnath Wildlife Sanctuary, Western Himalaya”.

This work involved the quantification of forest availability, distribution, utilization pattern and management by the local communities in the outer fringes of Kedarnath Wildlife Sanctuary.

- April 2005-May 2005. **Field Taxonomist**- Wildlife Institute of India. Prediction of forest height and biomass in dry and moist deciduous forests using the Geoscience Laser Altimeter System.

It involved identification of specific plot locations using GPS, laying vegetational sample plots, collecting hemispherical photos and soil samples.

- June 2004- March 2005. **Field Assistant** at Wildlife Institute of India in a project entitled “An alpine expedition covering alpine region of Western Himalaya (Uttarakhand, Himachal Pradesh and Jammu & Kashmir).

It involved characterization of alpine meadows of Uttarakhand, Himachal Pradesh and Jammu & Kashmir (Western Himalaya) and trekked ~3000 km on foot. Rapid Mapping Exercise (RME) for Medicinal and Aromatic Plants (MAPs) was performed across the alpine region.

Academic Qualification

- **Ph.D. in Botany** (2009) from Kumaun University Nainital on “**Diversity pattern of vascular plants in some parts of Kedarnath Wildlife Sanctuary (Western Himalaya)**”.

- **M.Sc. Botany** (2004) from Govt. P.G. College Pithoragarh, Kumaun University Nainital with specialization in Plant Taxonomy and Plant Pathology.
- **B.Sc.** (2002) from Govt. P.G. College Pithoragarh, Kumaun University Nainital with Zoology, Botany and Chemistry.

Details of Publications

Books: 1 (one)

1. Ishwari Datt Rai, **Gajendra Singh** and Gopal Singh Rawat (2017). Plants of Kedarnath Wildlife Sanctuary, Western Himalaya, A field Guide. Bishan Singh Mahendra Pal Singh, Dehradun.

Manual: 1(one)

1. Bubb, P., Soesbergen, A.V., Bisht, N., **Singh Gajendra**, Joshi, S., Aryal, K., Danks, F.S., Rawat, G.S., Bhuchar, S., Wu, N., Kotru, R., Yi, S. (2017). Planning management for ecosystem services – An operations manual. ICIMOD Manual 2017/5. Kathmandu: ICIMOD.

Research papers published

1. **Gajendra Singh**, S. Lingwal, A. Thapaliyal, A. Pandey. M. S. Sarkar, D. Pant (2017). Monitoring Landscape Level Changes Using Remote Sensing Tools. Rawat, G.S. and Gopi. G.V. (Ed.) (2017). Manual for Comprehensive environmental and Socio-economic monitoring in Kailash Sacred Landscape, India. Wildlife Institute of India, Dehradun. 195pp.
2. B. Joshi, R. Joshi, B.S. Adhikari. **Gajendra Singh** and R.S. Rawal (2017). Vegetation analysis and monitoring protocol in the Kailash Sacred Landscape India. Rawat, G.S. and Gopi. G.V. (Ed.) (2017). Manual for Comprehensive environmental and Socio-economic monitoring in Kailash Sacred Landscape, India. Wildlife Institute of India, Dehradun. 195pp.
3. Rai, I.D., J.S. Jalal, **Gajendra Singh** and G.S. Rawat (2017). Note on the occurrence of cryptic and endangered mycoheterotrophic orchid *Galeola falconeri* hook.f. from western Himalaya. **Indian Forester** 143(7) 710-711.
4. Rai, I.D., A. Kumar, **Gajendra Singh**, B. S. Adhikari and G.S. Rawat (2017). Three noteworthy additions to the flora of the Western Himalaya, India. **Journal of Threatened Taxa** 9(7), 10421-10425.
5. S. Lingwal, A. Negi, **Gajendra Singh**, D. Pant and N. Lingwal (2017). Implementing Seam Carving in Digital Image: The Fractal Way. International Journal of Applied Engineering Research ISSN 0973-4562 Volume 12, Number 8 (2017) pp. 1671-1674.
6. Rai, I.D., **Gajendra Singh** and G.S. Rawat (2016). Noteworthy additions to the Flora of Uttarakhand, Western Himalaya, India. **Journal of Threatened Taxa** 8(7), 9004-9008.
7. **Gajendra Singh, G.**, H. Padalia, I.D. Rai, R.R. Bharti and G.S. Rawat (2016). Spatial distribution and conservation status of Banj oak (*Quercus leucotrichophora* A. Camus) forests in Uttarakhand (Western Himalaya), India **Tropical Ecology**, 57(2) 255-262.

8. Rai, I.D., J. S. Jalal, **Gajendra Singh**, G.S. Rawat (2015). Extended distribution of *Platanthera cumminsiana* (King and Pantl.) J. Renz (Orchidaceae) in Western Himalaya, India. **Indian Journal of Forestry**, 38(1), 95-98.
9. Rai, I.D., **Gajendra Singh**, G. S. Rawat (2015). Rediscovery, distribution and conservation status of *Leptodermis riparia* R. Parker (Rubiaceae) in Western Himalaya, India, **Telopea**, (18), 79-83.
10. Rai, I.D., J. S. Jalal, **Gajendra Singh**, P. Kumar (2015). A note on the occurrence of *Eulophia flava* (Lindl.) Hook. f. (Orchidaceae) in Kumaon Himalaya **Indian Journal of Forestry**, 38 (3), 263-264.
11. **Gajendra Singh**, I. D. Rai, G. S. Rawat, G.S. Goraya and J.S. Jalal (2015). Addition to the Flora of Great Himalayan National Park, Himachal Pradesh. **Indian Journal of Forestry** 38 (4) 375-381.
12. Rai, I.D., J.S. Jalal, **Gajendra Singh** and G.S. Rawat (2015). Extended distribution of *Platanthera cumminsiana* (King and Pantl.) J. Renz (Orchidaceae) in Western Himalaya, India. **Indian Journal of Forestry** 38 (1) 95-98.
13. Rai, I.D., J.S. Jalal, **Gajendra Singh** and G.S. Rawat (2014). *Platanthera pachycaulon* (Orchidaceae), an addition to the orchid flora of Western Himalaya, India. **Ricardiana**, 14: 266-273.
14. Rai, I.D., **Gajendra Singh** and G.S. Rawat (2013). *Bistorta tenuifolia* var. *gidarensis* (Polygonaceae), a new variety from India. **Phytotaxa** 92(1):13-19.
15. **Gajendra Singh**, I.D. Rai, G.S. Rawat and G.S. Goraya (2013). *Neottia pinetorum* (Lindl.) Szlach. (Orchidaceae): A new orchid to the flora of Himachal Pradesh, (Western Himalaya), India. **Indian Forester** 139(6): 566-567.
16. **Gajendra Singh**, I.D. Rai and G.S. Rawat (2012). The mortality of banj oak (*Quercus leucotrichophora* A. Camus) trees in Mussoorie, Uttarakhand: is it an alarming call for rapid degradation? **Current Science**, 102(12).
17. Kumar, A., M. Mitra, **Gajendra Singh** and G.S. Rawat (2012). An inventory of flora of Binog Wildlife Sanctuary, Mussoorie, Garhwal Himalaya. **Journal of Fundamental and Applied Life Sciences**. 2(1).
18. **Gajendra Singh**, and G.S. Rawat (2012). Quantitative Analysis of Tree Species Diversity in Different Oak (*Quercus* spp.) Dominated Forests in Garhwal Himalaya, India. **Not Sci Biol**, 4(4):132-140.
19. **Gajendra Singh** and G.S. Rawat (2012). Depletion of Oak (*Quercus* spp.) Forests in the Western Himalaya: Grazing, Fuelwood and Fodder Collection. In C. A. Okia (eds.) **Global Perspectives on Sustainable Forest Management**, Intech publisher, Croatia.
20. Thakur, A.K., **Gajendra Singh**, S. Singh and G.S. Rawat (2011). Impact of Pastoral Practices on Forest Cover and Regeneration in the Outer Fringes of Kedarnath Wildlife Sanctuary, Western Himalaya. **Journal of the Indian Society of Remote Sensing**. Vol. 39 (1). 127-134.

21. **Gajendra Singh**, I.D. Rai and G.S. Rawat (2011). Year 2010 was “mast seed year” for the Kharsu oak (*Quercus semecarpifolia*) in the Western Himalaya. **Current Science**. Vol. 100 (2).
22. **Gajendra Singh**, and G.S. Rawat (2011). Ethnobotanical survey of Kedarnath Wildlife Sanctuary in Western Himalaya, India. **Indian Journal of Fundamental and Applied Life Sciences**. Vol. 1 (1). 35-46.
23. **Gajendra Singh**, M.S. Rawat, D. Pandey and G.S. Rawat (2011). Status and Traditional Uses of Medicinal plants in Mandal area of Western Himalaya, India. **Medicinal Plants**. Vol. 3(2).
24. **Gajendra Singh**, D. Verma, D. Pande and G.S. Rawat (2011). Phyto-resources Diversity and their Traditional uses by Mountain villages of Kedarnath Wildlife Sanctuary, Western Himalaya, India. **Journal of Economic & Taxonomic Botany**, Vol. 35, (2). 301-313.
25. **Gajendra Singh**, G.S. Rawat and D. Verma (2010). Comparative study of fuelwood consumption by villagers and seasonal “Dhaba owners” in the Tourist affected regions of Garhwal Himalaya, India. **Energy Policy**. Vol. 38 (4). 1895-1899.
26. **Gajendra Singh** and G.S. Rawat (2010). Is the future of oak (*Quercus* spp.) forests safe in the Western Himalaya? **Current Science**. Vol. 98 (11). 1420.
27. Verma, D., **Gajendra Singh**, N. Ram and M. Thapaliyal (2010). Germination Behavior of Seeds of Himalayan Hornbeam (*Carpinus viminea* L.) in Western Himalaya, India. **Indian Forester**. Vol. 136(8). 1096-1103.
28. **Gajendra Singh**, G.S. Rawat and J. S. Jalal (2009). Orchid Diversity of Mandal Valley in Kedarnath Wildlife Sanctuary, Western Himalaya. **The Journal of the Orchid Society of India**. Vol. 22 (1-2): 43-47.
29. **Gajendra Singh**, H.B. Naithani and G.S. Rawat (2009). Observations on the Flora of Mandal Forest, Garhwal Himalaya, India. **Indian Forester**, Vol.135 (2). 162-179.
30. Verma, D., **Gajendra Singh** and N. Ram (2009). *Carpinus viminea*: A pioneer tree species of old landslide regions of Indian Himalaya. **Current Science**. Vol. 97(9). 1277-1278.
31. **Gajendra Singh** and I. D. Rai (2008). Conservation of Threatened Habitats and Endemic Plants in and around Kedarnath Wildlife Sanctuary, Western Himalaya. Rawat, G.S. (Ed.) Special Habitat and Threatened Plants of India. **ENVIS Bulletin: Wildlife and Protected Areas**, Vol.11(1). Wildlife Institute of India, Dehradun, India. pp. 239.

Accepted:

32. I. D. Rai, **Gajendra Singh**, G. Rawat (2018). *Anemone trullifolia* and *Berberis angulosa* as new record to the flora of Western Himalaya. **Journal of Threatened Taxa**.
33. I. D. Rai, **Gajendra Singh**, A. Pandey, G.S. Rawat (2018). Ecology of Treeline Vegetation in Western Himalaya: Anthropogenic and Climatic Influences. **Tropical Ecology**.

34. **Gajendra Singh**, M. S. Sarkar, A. Pandey, S. Lingwal, I. D. Rai, B. S. Adhikari, G. S. Rawat, R. S. Rawal (2018). Four decades of changes in land use and land cover in Kailash Sacred Landscape – India. **Indian Journal of Remote Sensing**.

35. M. S. Sarkar, A. Pandey, **Gajendra Singh**, S. Lingwal, G. S. Rawat, R. S. Rawal and D. Pant (2018) Multiscale statistical approach to understand Leopard (*Panthera pardus*) habitat suitability and connectivity in Kailash Sacred Landscape of Western Himalaya, India.

Popular Articles Published:

1. **Gajendra Singh**, S. Lingwal and D. Pant (2017). Geospatial Information on Kailash Sacred Landscape-India. KSLCDI-Newsletter (India). Vol. 4(I).
2. **Gajendra Singh** and Shashank Lingwal (2017). Pithoragarh Jile main char guna badi shaharikarn ke gati. Himal Prasang. January 2018.
3. **Gajendra Singh**. (2012). Banj oak (*Quercus leucotrichophora*) forests: Life Line for the Himalayan region. Wildlife Institute of India, Newsletter.
4. **Gajendra Singh**. (2008). Mandal Ghati: Jaiv Vividhata. Van Vaibhav. Wildlife Institute of India, Dehra Dun.
5. **Gajendra Singh**.(2007). A Trek to Mandani and Kham Bugyals of Kedarnath Wildlife Sanctuary, Wildlife Institute of India, Newsletter.
6. **Gajendra Singh**. (2005). Manav ki Jimmedariyan, Ashmika, Wadiya Institute of Himalayan Geology Dehra Dun.

Scientific Abstracts Published

1. **Gajendra Singh**, I.D. Rai and G.S. Rawat. 2017. Decadal changes in the Alpine meadows of Western Himalaya: A case study from Kailash Sacred Landscape-India. Commonwealth Forestry Congress, Forest Research Institute Dehradun.
2. Ishwari D. Rai, **Gajendra Singh** and Amit Kotia. 2009. Status of threatened and some endemic plants around Kedarnath Wildlife Sanctuary, Western Himalaya. Indian Botanical Conference, Chennai.
3. **Gajendra Singh** 2005. Cultivation of Medicinal and Aromatic Plants in inner valleys of Uttarakhand in Rawat (2005) Alpine Meadows of Uttarakhand. Bishan Singh Mahendra Pal Singh.

Project Reports:

1. **Singh, Gajendra**, I.D. Rai and G.S. Rawat. (2012). Alpine Meadows of Uttarkashi: Plant Species Diversity, Grazing Pressure and Conservation Status. Wildlife Institute of India Dehradun.
2. **Singh, Gajendra** and G.S. Rawat. (2011). Assessment of Banj oak (*Quercus leucotrichophora*) forests and its conservation in Uttarakhand.

3. **Singh, Gajendra**, V.B. Mathur and G.S. Rawat. (2011). High Altitude Floristic Survey and Biodiversity Monitoring in Khiron Valley, NDBR. Wildlife Institute of India, Dehradun.
4. **Singh, Gajendra** and G.S. Rawat. (2009). Geospatial phyto-resources inventory in the outer fringe of Kedarnath Wildlife Sanctuary, Western Himalaya. Wildlife Institute of India, Dehradun.

Paper Presented in Various Seminars/Symposiums/Workshops:

(National/International):

1. Commonwealth Forestry Congress(**April, 2017**). Decadal changes in the Alpine meadows of Western Himalaya: A case study from Kailash Sacred Landscape-India.
2. Young Ecologist Talk and Initiatives (YETI)-2012. Participated and organized a workshop on Field course on Plant Taxonomy.
3. 6th Uttarakhand State Science and Technology Congress-2011. S.S.J. Campus Almora (**November 2011**). Assessment of Banj oak (*Quercus leucotrichophora*) forests and their conservation in Uttarakhand.
4. International conference on Biodiversity and Conservation (**December 2010**) at G.B. Pant G.B. Pant Institute of Himalayan Environment & Development, Kosi-Katarmal, Almora.
5. 5th Uttarakhand State Science and Technology Congress-2010. Doon University, Dehradun (**November 2010**). Status of Banj oak (*Quercus leucotrichophora*) Forests in Garhwal Himalaya, Uttarakhand.
6. 4th Uttarakhand State Science and Technology Congress-2009. G.B. Pant University of Agriculture & Technology, Pantnagar (**November 2009**).*Structure and composition of woody vegetation along the altitudinal and human use gradient in the Kedarnath WS, Western Himalaya.*
7. International conference “Changing Environmental Trends and Sustainable Development” (CETAS-2009), Deptt. of Env. Sc. & Eng. Hisar (**February 2009**). *Forest resource diversity and utilization pattern in the outer fringes of Kedarnath WS, Western Himalaya.*
8. International seminar on Role of Plant Taxonomy in Biodiversity Management and Human welfare, Forest Research Institute (FRI) Dehra Dun (**December 2008**).*Diversity, status and conservation of oak (Quercus spp.) forests at Mandal-Tungnath region in Kedarnath WLS, Western Himalaya.*
9. Seminar on Opportunities and scope for research in government colleges, Govt. P.G. College Pithoragarh (**March 2007**).
10. Regional capacity building workshop on Orchid Taxonomy and Conservation, Botanical Survey of India, Dehra Dun (**March 2007**).
11. Symposium on Himalayan Biodiversity- Issues and options for Priority Research. G.B. Pant Institute of Himalayan Environment & Development, Kosi-Katarmal Almora (**March 2006**).

Invited Lectures Delivered:

1. Alpine Meadows of Western Himalaya: Biodiversity, Status and Threats at Graphic Era, March 2018.
2. Degraded Natural Habitats and their Restoration under the GSDP-Advance Course at Botanical Survey of India on February, 2018.

Training Workshop Attended

National

1. Off Campus Outreach Certificate Programme on “**Remote Sensing and GIS Application in Carbon Forestry**”organised by Indian Institute of Remote Sensing during February 16 to March 10, 2017.
2. Training programme on “**Office Management and Procedures**”organised by Will and Skill Creation Private Limited at Dehradun during 14-17 December, 2016.
3. Regional Training workshop on “**Promotion of Metadata Use and Data Paper Publication**”, held at Institute of Environment Education and Research, Bharti Vidhyapeeth University, Pune, India from 19-21 June, 2013.
4. DST, Govt. of India sponsored training workshop on “**Role of Scientist in Biodiversity Conservation**”, conducted by Wildlife institute of India, Dehradun from 8-13th November 2010.

International

1. Training workshop on “**Understanding multiscale linkages in Ecosystem Services assessment using ARIES platform**” in the Hindukush Region from 8-10 November 2016, Kathmandu, Nepal.
2. Training Workshop on “**Piloting Ecosystem Management Framework in Transboundary Landscapes**” from 5-7 September 2014, Kathmandu, Nepal.
3. Transboundary “**Programme Awareness and Implementation Strategy Workshop**” from 21-23 April 2014, Dhangari, Nepal.
4. One week course on: “**International School on Mountain Ecology and Global Change**”, from 24-28. 2012. **University of Innsbruck, Austria.**

Workshop/Training Conducted

1. Conducted training on the Application of Bhuvan Panchayat Portal and Asset Mapping Activities under EPRIS project at Vikash Bhawan, Pithoragarh on November 25, 2017.
2. Conducted people representative meet on “**Our Heritage our Identity**” under Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) organised jointly by WII, GBPIHED, USAC, UKSBB, UKFD, CHEA at Sabhagar, Zila Panchayat, Pithoragarh (November 25, 2017).

3. Conducted District Level workshop on **“Empowering Panchayati Raj Institutions Spatially (EPRIS)”** to the representatives of Panchayati Raj Institutions (PRIs) of District Pithoragarh on November 24, 2017.
4. Conducted Block Level Workshop on **“Empowering Panchayati Raj Institutions Spatially (EPRIS)”** to the representatives of Panchayati Raj Institutions (PRIs) of Pithoragarh (Bin) and Munakot Blocks during April 10-12, 2017.
5. Off Campus Outreach Certificate Programme on **“Remote Sensing and GIS Application in Carbon Forestry”** organised by Indian Institute of Remote Sensing during February 16 to March 10, 2017.
6. Conducted **“Diversity our Heritage our Identity”** workshop under Kailash Sacred Landscape Conservation and Development Initiative (KSLCDI) organised jointly by WII, GBPIHED, USAC, UKSBB, UKFD, CHEA at Gangolihat, KSL-India (December 28-30, 2016).
7. Uttarakhand State Meet on **“Promoting Space Technology based Tools and Applications in Governance & Development”** organised by Uttarakhand Space Application Centre (USAC) on 27 February, 2016.
8. Training on *National database on Emergency Management (NDEM)* was organized Jointly by Uttarakhand Space Application Centre (USAC) and National Remote Sensing Centre, Hyderabad on 2nd July, 2015.
9. Field Course on Plant Taxonomy, held at Punian’s Corbett Fall Resort, Nainital organised by Wildlife Institute of India, Dehradun from 15-19 March, 2009.
10. Workshop on **“Mandal Ghati ke Vano ki Vartaman Sthithi wa Sanrakshan par Karyashala”** at Mandal, Chamoli, Uttarakhand organized by Wildlife institute of India, Indian Institute of Remote Sensing, GB Pant Agriculture & Technology, Herbal Research Development Institute and Forest Department, Uttarakhand on 28th April, 2008.

Award and Membership in Professional Bodies

1. Young Scientist Award (2009), from Department of Science and Technology, Govt. of India
2. Life member of Indian Science Congress
3. Annual member of Journal of Tropical Ecology
4. Life Member of ISPRS, Dehradun Chapter

Media Coverage

<http://www.tribuneindia.com/2013/20130113/dun.htm#9>
http://epaper.tribuneindia.com/81861/Dehradun-Edition/DE_13_January_2013

Extra-Curricular Activities

1. 2004. Member of Kumaun University Cricket Team.
2. 2006. Member of Wildlife Institute of India’s Badminton Team.
3. 2007. Member of Wildlife Institute of India’s Hockey Team.
4. 2008 and 2011. Member of Wildlife Institute of India’s Cricket Team.