

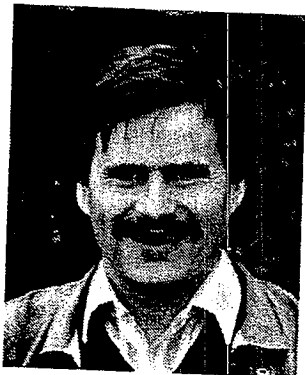
**Intraspecific variation in Kohleria (Gesneriaceae).**

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Intraspecific variation in  
*Kohleria* (Gesneriaceae)

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The genus *Kohleria* (Gesneriaceae; Gesnerioideae; Gloxinieae) has been revised. Species of *Kohleria* are attractive, terrestrial herbs usually with conspicuous red flowers. *Kohleria* ranges from Mexico to

Peru and east to Suriname and from sea level up to an altitude of about 2,500 m; most commonly the species are found between 800 and 2,000 m.

During the last century *Kohleria* was popular in European greenhouses, and many species were described from cultivated material of unknown origin. For this reason the taxonomy of *Kohleria* has been highly problematic. The revisionary work demonstrated that although approximately 100 species have been described only 17 species can be recognized, and four of these are new. The diversity center is Colombia with a total of 14 species, nine of which are endemics.

Eleven *Kohleria* species occur mainly in exposed, disturbed habitats along rivers or roads, etc. They have capsules which split apically into two valves, and their tiny seeds are wind dispersed. In contrast, the remaining species occur in shaded, permanently humid understorey often close to streams. Wind-dispersal is no option in this environment. In these species the capsules split by a single slit from the apex to the base and expose a sticky seed mass which is apparently removed by unidentified nocturnal animals. The understorey species also lack the scaly rhizomes which enable species from exposed habitats to survive dry spells.

The three most common species, *Kohleria hirsuta*, *K. spicata*, and *K. tubiflora*, are all wind dispersed. The latter two species have surprisingly stable characteristics throughout their wide ranges, e. g., *K. spicata* specimens from Mexico look very similar to those from Ecuador. In contrast, *Kohleria hirsuta* is extremely variable especially within the Colombian diversity center of the

genus. This is partly due to hybridization with other species, e. g., with *K. trianae* on the eastern slopes of the central Colombian cordillera. *Kohleria hirsuta* and *K. trianae* actually have allopatric ranges in the eastern and the central cordilleras, respectively. However, especially *K. hirsuta* is wind-dispersed across the dry, hot Magdalena river valley and hybridizes with *K. trianae*. The presence of the Magdalena valley apparently prevents hybridizations from completely breaking down the limits between these two species.

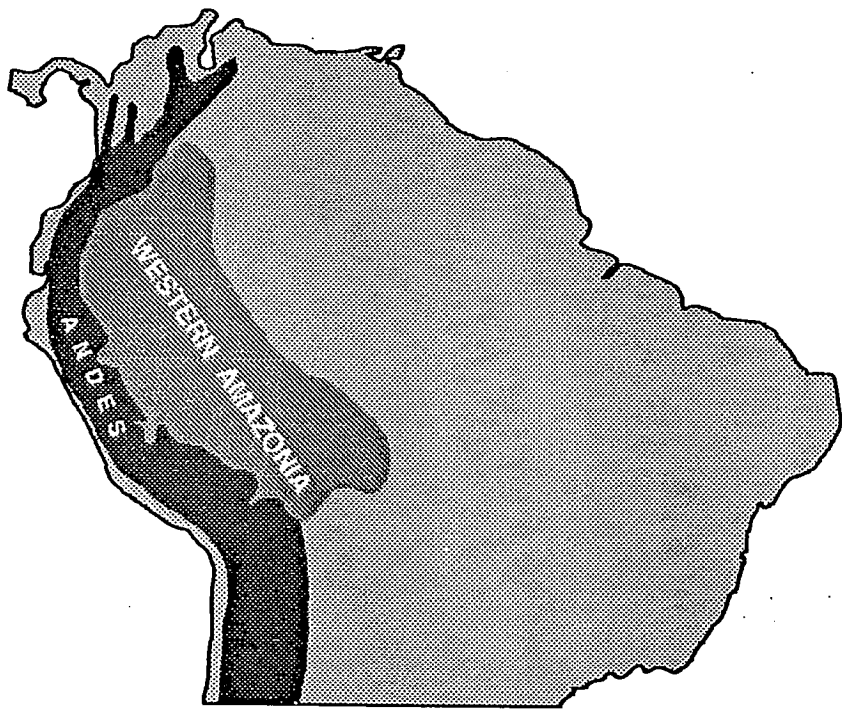
The most common and widespread understorey species, *K. inaequalis*, may be the most variable species of Gesneriaceae so far studied; variable features are the sizes of calyx lobes and corollas, the lengths of peduncles, and the lengths of trichomes. *Kohleria inaequalis* appears to be a complex of three semi-species that are hybridizing extensively since, at least at the present time, no dispersal barriers exist between their ranges. Pure-breeding populations of the three semi-species have peripheral ranges and are characterized by having either large flowers and pedunculate inflorescences or large flowers and ependunculate inflorescences or else small flowers and pedunculate inflorescences.

Generally, the predominant mode of speciation in *Kohleria* appears to be geographical isolation of peripheral populations, while hybridization is breaking down the limits of species rather than creating new species.

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