

of the widespread species, T. parviflorum Nutt. Ten to twenty individuals were sampled from two populations of T. appalachianum, which occur within a 0.25 mile area, and from three populations of T. parviflorum located in Texas, Arkansas, and Kansas. Populations of the two species have cytologically confirmed chromosome counts of $2N=24$. The five populations are morphologically similar; population means overlap for four floral characters, petal length, number of stamens, style length and number of ovules. In both species anthesis occurs between 1630 hours and 1800 hours, and the flowers are self-pollinated at flower closing around 2000 hours. Talinum parviflorum and T. appalachianum have high genetic identity (Nei's $I = 0.960$) based on starch gel electrophoresis of 14 enzyme systems representing 22 genes. Crosses between T. parviflorum and T. appalachianum resulted in fertile hybrids. These data support the conclusion that T. appalachianum is the easternmost population of T. parviflorum, which may represent a remnant of its past distribution in the Southeast.

458

CLARK, CURTIS. Biological Sciences, California State Polytechnic University, Pomona CA 91768. - Selection against hybrid recombinants as a reproductive isolating mechanism: the syngameon reassessed.

The not uncommon interspecific hybridization of perennial plants has stood as a challenge to the reproductive ("biological") species concept. This challenge has been reconciled by considering the hybridizing entities to be "semispecies" forming a syngameon, the latter being regarded as equivalent to the "biological species". However, studies of Encelia (Asteraceae) suggest that natural selection against hybrid recombinants may in such cases provide a strong barrier to interspecific gene flow. Other evidence, including the presence of robust phylogenies within syngamea and the long duration of some semispecies in the fossil record, indicates that selection against recombinants is not as tenuous a barrier as some investigators have assumed, and that many semispecies have the attributes of, and are best regarded as, biological species.

459

CLARK, LYNN G. Department of Botany, Iowa State University, Ames, IA 50011. - The leaf epidermis in Chusquea and Swallenochloa (Poaceae: Bambusoideae). Members of the Bambusoideae are characterized by certain foliar epidermal features, including distinctive silica bodies, the presence of bicellular microhairs and papillose long cells with sinuous walls. Scanning electron microscope observations of leaves in 40 species of Chusquea and Swallenochloa demonstrate their typically bambusoid leaf epidermises, but at the same time reveal extreme variations in papillosity. In both Chusquea and Swallenochloa, the adaxial leaf surface generally lacks stomata, and papillae are inconspicuous or entirely lacking. Very conspicuous, often branched papillae are evident on the abaxial surface of all species of Swallenochloa. Epicuticular wax is commonly present. Stomata are usually obscured by the overarching papillae on adjacent subsidiary and long cells. I interpret this as an adaptation to the cold, wet and stressful paramo habitat of this genus. High-elevation species of Chusquea, such as C. scandens, C. tonduzii and C. spencei, exhibit similar features on their abaxial leaf surfaces. More mesic, lower-elevation species of Chusquea show reduced, simple papillae which do not arch over the stomata. In the most extreme example, papillae are present only on the subsidiary cells in Chusquea virgata. Variation in the density and elaboration of papillae forms a continuum between high-elevation Swallenochloa and Chusquea species and the lower-elevation, cloud forest species of Chusquea. Although taxonomically useful, the significance of the variation in papillae lies primarily in their strong correlation with habitat in Chusquea and Swallenochloa.

460

CURRAH, RANDOLPH. Devonian Botanic Garden. University of Alberta, Edmonton, Alberta T6G 2E9. - Phylogenetic reconstruction in the keratinolytic families of the Onygenales (Ascomycetes). In the filamentous fungi, keratinolytic enzymes exhibit a highly restricted