Insights into the relationships of three Costa Rican allotetraploids in the fern genus *Polystichum* (Dryopteridaceae).

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Allopolyploids incorporate genomes from different progenitors, usually different species; they often arise from a hybridization event followed by a followed by restoration of fertility through chromosome doubling. Allopolyploidy as a mechanism of speciation is rampant in the ferns: polyploids comprise as much as 44% of the genus *Polystichum.* Three tetraploids with allopolyploid genetic signatures are known from the alpine zone of the Sierra Talamanca of Costa Rica and Panama. The first, *Polystichum talamancanum*, is endemic to the range; it has as progenitors *Polystichum concinnum*, also endemic to the range, and an unknown diploid. The second, *Polystichum orbiculatum*, is in contrast a characteristic fern of alpine terrains from Mexico to Bolivia; previous work indicates that the unknown progenitor of *P. talamancanum* is one of its progenitors. The third, *Polystichum lilianae,* is endemic of the Sierra Talamanca and the Cordillera Central occurring in wet, shaded sites in oak forests; it has as progenitors the widespread neotropical diploid *P. turrialbae* and an unknown diploid. We used direct and cloned sequences from the single-copy nuclear genes gapCp and PGIc to characterize the genomes of these three tetraploids, discerning the *turrialbae* genome in *P. lilianae*, the *concinnum* genome in *P. talamancanum,* and the genome in *P. talamancanum* that is shared with *P. orbiculatum*.