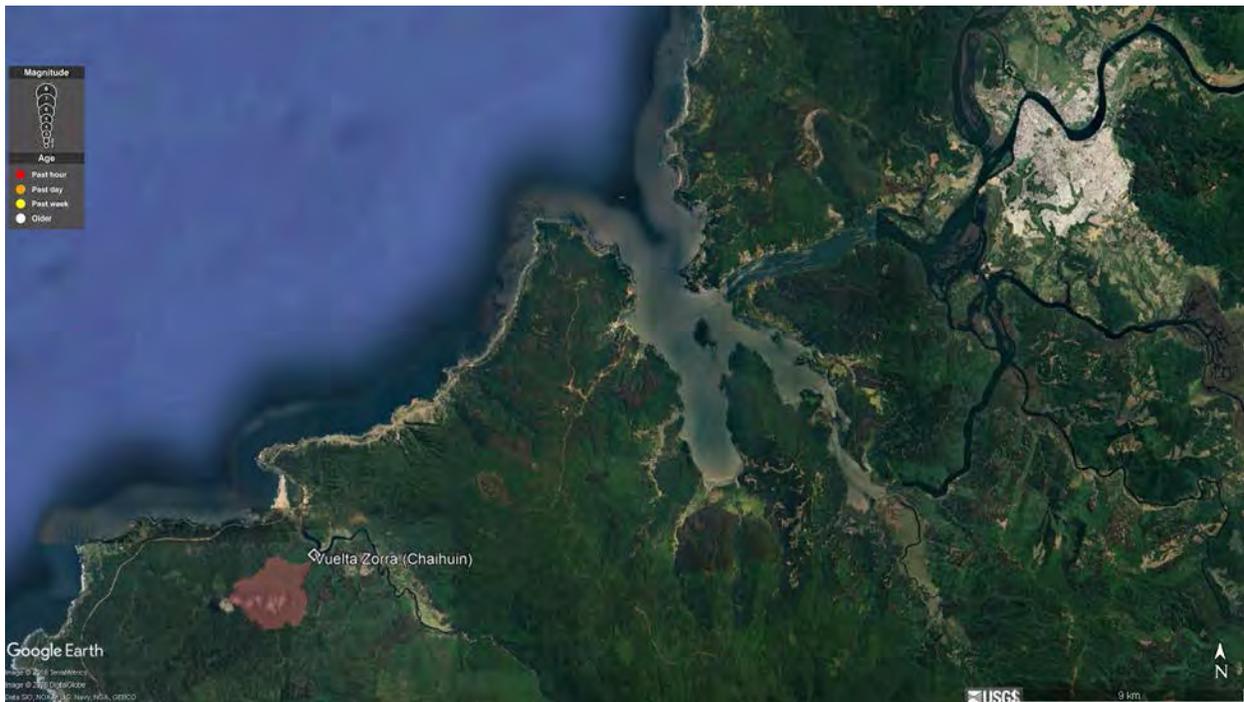




**Field Trip Guide for Reserva Costera Valdiviana
Pre-Conference tour for Wood in World Rivers 4 Conference – Jan 7, 2019**



The city of Valdivia (in grey) and the Vuelta de Zorra catchment.

Field Trip Schedule in Brief

The field trip departs Valdivia at 0900 on Jan 7, 2019 and returns to Valdivia by 1800 in time for the welcoming dinner. Travel to the reserve will be by bus and includes a short ferry ride across the estuary of Corral Bay, arriving near the small town of Corral and a big nearby wood chip shipping facility. We will first stop at the TNC visitor center at the reserve for a general introduction to the area, and then proceed to the principle study sites on the Vuelta de Zorra (“return of the fox”). We will hike up the valley along a trail set back from the stream, and then take short paths to the stream to view channel and forest conditions.

The 50,800-ha Reserva Costera Valdiviana of The Nature Conservancy (TNC), located approximately 40 km southwest of Valdivia, has become an important research site for watershed scientists and forest ecologists of the Universidad Austral de Chile. Established as a TNC reserve in 2005, this property is operated in conjunction with many stakeholders, including local, indigenous peoples, who have occupied the area for millennia and some of whom reside in the place today. These diverse lands – forests, rivers, lakes, wetlands, and near-shore marine environments – provide the native people with a wealth of food and other resources and provide researchers with many opportunities for study. Management objectives of the reserve include these outcomes as well as conservation of nature – see: <http://www.reservacosteravaldiviana.cl> for more information about the reserve.

The rugged landscape of the reserve extends from sea level to 1084 m elevation and the rain-dominated precipitation regime across this topographic gradient ranges from 1500 mm at low elevation to approximately 4250 mm in the highest areas. The native forest is composed mainly of coastal temperate rainforest, including the threatened (as listed by IUCN in 2005) Coastal Larch or Alerce (*Fitzroya cupressoides*). Forestry companies owned the land for many decades and converted much of the native forest to plantations of eucalyptus, so today’s forest landscape is a complex mosaic of native and previously managed stands.

Andres Iroume and colleagues have conducted wide-ranging studies of important aspects of wood in rivers in this type of forest and terrain using the Vuelta de Zorra watershed within the reserve as one of several model systems in the coastal range and Andes of Chile. This 3rd-order, 587-ha watershed is 75% covered with native evergreen rainforest and 24% *Eucalyptus nitens* plantations. This team’s work began with basic inventory of large wood pieces (n = 484) over a 1557-m study segment divided in 16 reaches (mean channel width ca. 10 m, mean gradient ca. 0.04 m m⁻¹) to quantify number, volume, and spatial distribution of wood in the river (Iroume et al 2010). Mobility of wood pieces was assessed based on a resurvey in 2009. They observed wood loadings of approximately 110 m³ha⁻¹, which is in general agreement with observations in similar forest types in the southern hemisphere, but somewhat lower than in larger, denser, native forests in places such as the Pacific Northwest US. They also observed that longer pieces had lower mobility, in keeping with some studies elsewhere. In combination with two other sites in Chile, individual tagged, georeferenced pieces of wood in the Vuelta de Zorra study segment were resurveyed in 2014 and 2015 to estimate physical breakdown (5-27% loss) and decomposition (10-25% loss) over the 10-year period (Iroume et al 2017). In a third study Iroume et al (2018) analyzed movement data from 1264 tagged pieces over an 8-year period in four sites, including the Vuelta de Zorra, to assess displacement distance. In general, they found greatest transport when discharge

exceeded bankfull flow and for pieces that were shorter than channel width. Presence of root wads reduced transport distance. They also noted that certain stream reaches characterized by a wide channel and valley floor and low gradient tended to be the most dynamic in terms of wood input and mobilization.

Monitoring of these sites continues, suggesting that this Wood in World Rivers meeting presents an opportunity for a group of large-wood-in-rivers scientists to commit to form an international network of monitoring sites for purposes of future comparative analysis. The Figure 1 in the next page presents the Vuelta de Zorra watershed, the channel network, and the 1557-m study segment and the 16 individual reaches.

After the visit to the Vuelta de Zorra watershed we will drive to visit an area of native, ancient, Valdivian rainforest, with presence of Alerce (*Fitzroya cupressoides*).

At <https://www.wwr4.cl/session-program/> you will find a link to the Map with general information for the WWR4 Conference, and the sites for the pre and post-conference tours.

References Cited

- Iroume A, A Andreoli, F Comiti, H Ulloa, A Huber. 2010. Large wood abundance, distribution and mobilization in a third order Coastal mountain range river systems, southern Chile. *Forest Ecology and Management* 260: 480-490.
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- Iroume A, V Ruiz-Villanueva, L Mao, G Barrientos, M Stoffel, G Vergara. 2018. Geomorphic and stream flow influences on large wood dynamics and displacement lengths in high gradient mountain streams (Chile). *Hydrological Processes* 32: 2636-2653.

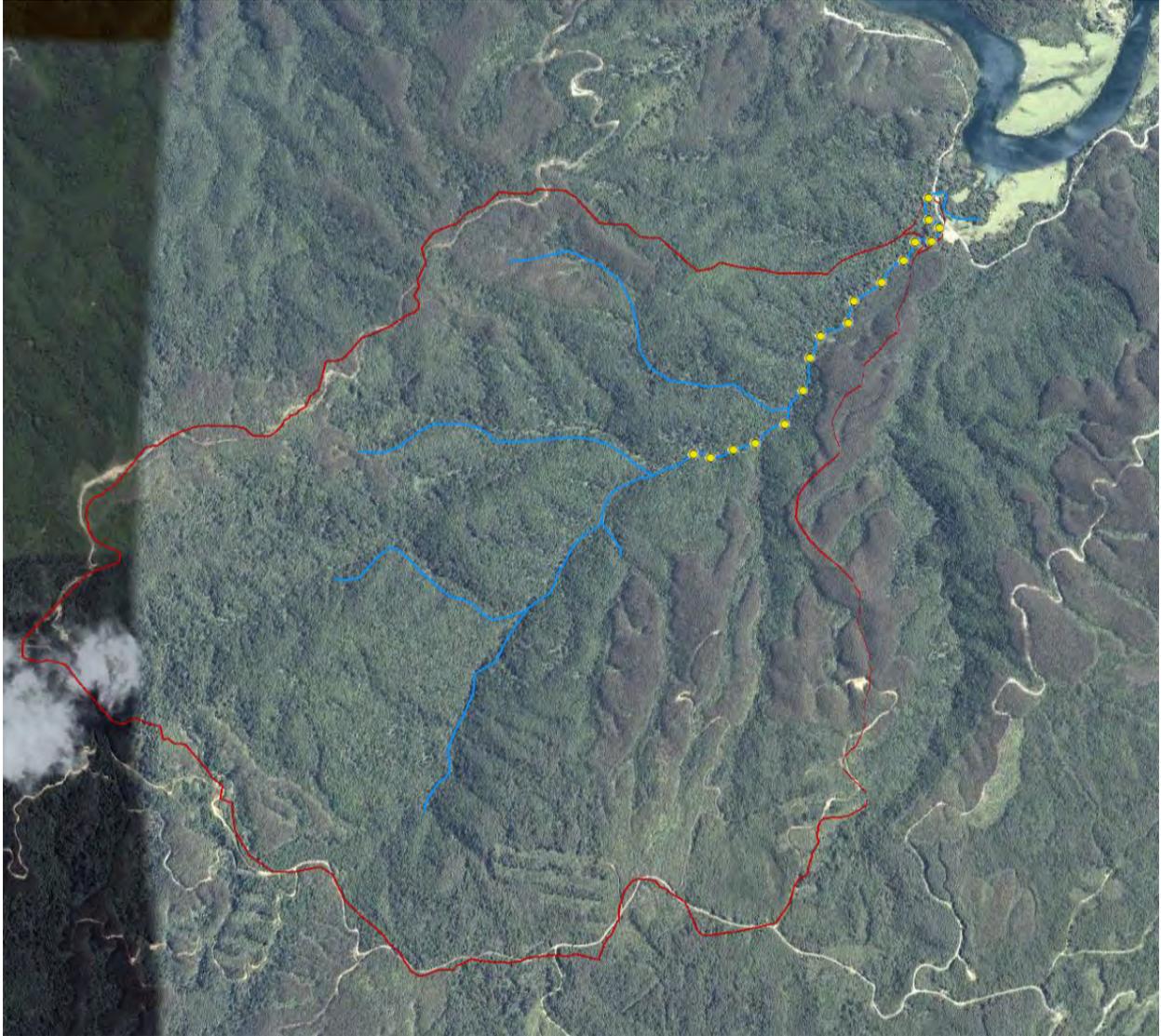


Figure 1. The 587-ha Vuelta de Zorra watershed draining into the Chaihuín river. In yellow the limits of the 16 individual reaches along the 1557-m study segment.