## Exploring genomic signatures of environmental adaptation in Ethiopian sheep P. Wiener<sup>1</sup>, C. Robert<sup>1</sup>, M. Salavati<sup>1</sup>, J. Prendergast<sup>1</sup>, J. Friedrich<sup>1</sup>, D. Wragg<sup>1</sup>, D. Hume<sup>1,2</sup>, M. Watson<sup>1</sup>, A. Ahbara<sup>3</sup>,

220.4 428.9 637.5 1263 1472 1680 1889 2097 2201 2410 2618 2879 https://maps-ethiopia.con ethiopia-map-africa

Motivation: Livestock subject to both artificial and natural selection Ethiopia viewed as gateway into Africa for domesticated cattle and sheep Ethiopia has wide range of agro-ecological zones and extensive genetic diversity of sheep Lower productivity but greater environmental resilience of native breeds vs. improved breeds

Aim: Use of environmental measurements as proxies for adaptation-related phenotypes  $\rightarrow$  identification of genomic regions associated with environmental adaptation

J. Mwacharo<sup>4,5</sup>, O. Hanotte<sup>3,6</sup>, E. Clark<sup>1</sup>

Key result: Environmental Association Analysis (BayPass) revealed greater number of genomic associations for precipitation-related measures than measures related to altitude or temperature



## Genetic diversity of Ethiopian sheep

## Greatest number of genomic associations identified for measures related to *precipitation*



average (# markers with Bayes Factor > 10)

THE UNIVERSITY of EDINBURGH

Affiliations: 1. Roslin Institute, University of Edinburgh, UK; 2. Mater Research Institute, Australia; 3. University of Nottingham, UK; 4. International Center for Agricultural Research in the Dry Areas, Ethiopia; 5. Scotland's Rural College, UK; 6. International Livestock Research Institute, Addis Ababa, Ethiopia







