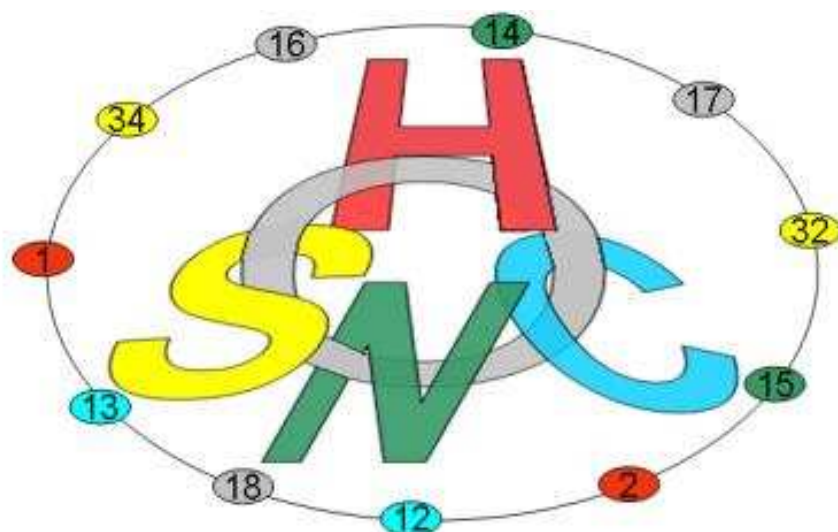


The 1st Isotope Ratio MS DAY



May 9-11, 2016

Fondazione Edmund Mach

S. Michele all'Adige (Trento, Italy)

BOOK OF ABSTRACTS

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OR5 - The geographical origin of birds migrating through Alps: a stable isotope approach ($\delta^2\text{H}$)

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Every year hundreds of thousands of European birds travel through Europe to reach their wintering areas after the breeding season. Geographical barriers such as seas, deserts or high mountain chains force migrating birds into constrained flyways that oblige populations of different geographical origin to aggregate and follow the ecological corridors they find along their journeys (Cox 2010). The Alps represent an ecological barrier for many bird species that migrate from central and northern breeding latitudes to southern wintering destinations, such as the Mediterranean basin or trans-Saharan Africa. To cross this barrier, birds and especially small Passerines are obliged to follow the geographical morphology of the alpine valleys and use ecological bottle-necks such as mountain passes in order to change valleys and continue their journey to the south (Bruderer and Jenni 1990). The majority of small songbirds migrate through the Alps between August and November, with two peaks in terms of abundance, the first in August for trans-Saharan species and the second in October for intra-Palearctic species. Since 1996 ISPRA and CNI (Centro Nazionale di Inanellamento – Italian Bird-ringing Centre) have conducted activities to monitor bird migration through the Alps ('Progetto Alpi', coordinated by MUSE in Trento and ISPRA). The project involves several ringing stations that work simultaneously between August and November from east to west across the Italian Alps (Pedrini et al. 2008, 2012). The project aims to understand the trends and timing involved in the migration of several songbirds. Hence, it becomes crucial to know the geographical origin of populations using the Italian alpine migratory corridor. In this study the $\delta^2\text{H}$ values measured in feathers sampled at the 'Bocca di Caset' ringing station (province of Trentino) from two passerines, the European robin *Erithacus rubecula* and the pied flycatcher *Ficedula hypoleuca* are presented. The known 'local feather/precipitation $\delta^2\text{H}$ ' regression was used to transform the $\delta^2\text{H}$ measured in feathers into values comparable with the mean-annual isoscape for the $\delta^2\text{H}$ of European precipitation water (Hobson et al. 2004, Bowen et al. 2005). The data obtained were subsequently used to calculate assignment, using IsoMAP to produce probability surfaces of geographical assignment (Bowen et al. 2014). The obtained areas of origin were further trimmed using prior information provided by a recovery dataset and the known breeding range of the species.

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