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**B-YAN: Belgian Young Acousticians Network**  
**3<sup>rd</sup> ABAV PhD and young acousticians day**  
**Jan 25<sup>th</sup> 2016, Ghent**

*Cultuur- en Congrescentrum 'Het Pand', Zaal Rector Vermeylen  
Onderbergen 1, 9000 Gent*

**Wildlife Monitoring through Acoustics: the Case of Woodpeckers**

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*Bird populations are commonly monitored as a way to assess environmental impact. An increasing number of projects deploy Automated Recording Stations (ARS) to track bird songs at critical locations. Yet deciphering the terabytes of audio that are collected presents a challenge to the emerging community of Ecoacousticians. In this context, our aim is to propose a complete solution for the case of European woodpeckers, with algorithms that can reliably detect and identify the ten European woodpecker species in ARS recordings. Woodpeckers are indicators and keystones, i.e. their presence both reflects and facilitates the prosperity of forests and of other animal species. They can be tracked through their drumming sounds and their songs. Based on the data available in open-access collaborative archives and on own recordings in a forest in Chevetogne, we developed programs to spot drumming in recordings and recognize the specie at work. The detection is two-steps with a first pass using the Acoustic Complexity Index and a second pass that exploits the repetitions inherent to drumming. For the species identification, our tests show an 86% success rate on a database of 2665 samples, which overshoots the 70% performance of the classical solutions inherited from human voice recognition research. The improvement is driven by a dedicated parameterization of the drumming signals. The design of acoustic features is of a superior importance than the choice of classifier. We are now preparing for a field deployment in the Fagnes area, where the last few Belgian specimen of grey-headed woodpeckers nest.*