Panel members:
Michael Bock (German Aerospace Center) MB
Jonathan C.-W. Chan (Vrije Universiteit Brussel) JC
Bart Deronde (Flemish Institute for Technological Research) BD
Christine Estreguil (Joint Research Centre of the European Commission) CE
Doug Evans (European Topic Centre – Biological Diversity) DE
France Gerard (Centre for Ecology and Hydrology) FG
Anne Schmidt (Alterra) AS
Gerard Smit (Bureau Waardenburg) GS
Nancy Van Camp (Flemish Geographical Information Agency) NVC

Moderator:
Geert De Blust (Research Institute for Nature and Forest) GDB

Minutes and report:
Els Knaeps (Flemish Institute for Technological Research)
Jeroen Vanden Borre (Research Institute for Nature and Forest)

Panel discussion starts at 15h20.
GDB opens the panel discussion and invites the participants to bring up their questions and remarks.

Question: We have heard a lot today about maps with sharp boundaries between habitat types, but what about maps showing transition zones (ecotones)?
(Daniel Doktor)

FG: It makes sense to produce ecotone maps, especially in some areas. But when you want to further derive information from it (e.g. statistics), you end up drawing a line between types somewhere, and the point where you decide to draw the line makes a big difference in your statistics.
DE: Indeed, users need sharp boundaries. They don’t like ‘dotted’ lines between habitat types because they want to calculate statistics from it.
AS: Sharp boundaries are not always needed to calculate statistics, it depends on what the user actually wants. E.g. for change monitoring, one could look at the percentage coverage of certain species. Thus for conservation status assessment, continuous maps can be valuable.
Q.: Commenting on what we heard today about thematic accuracy, do we have an idea of the maximum level of accuracy a classification can achieve? When using a hard classification, 100% accuracy would mean there are no mixed pixels, but this is of course unrealistic. So, what is then theoretically the best accuracy we can get?
(Alan Brown)

CE: This is very much dependent on the scale.
FG: It also depends on the complexity of the landscape. You could in fact look at the remaining inaccuracy as a measure of habitat complexity.

Geoff Groom points out that there is in fact a third community, next to the two communities represented here in the workshop (ecological and remote sensing), who are developing answers to these very same questions on scale and accuracy. This is the GIS-community, and we should involve them in this discussion.

CE adds that we have discussed a lot about thematic (classification) accuracy, but we should not forget about positional (geometric) accuracy, which may also have a large influence on the usefulness of the results.

Q.: Is it not so that there is actually more need for detection of changes than for pure mapping? If so, this would allow the use of totally different approaches than purely for mapping.
(Sander Mücher)

AS: Yes, change detection is important. However, although stated otherwise at this workshop, repeatability of remote sensing may not be high at all, because it can be difficult to get the same kind of images (e.g. same time of year) at two points in time. So we need more images for that.
MB: Accuracy assessment of change detection is a very difficult thing, but it is probably easier to do it with remote sensing than with traditional field mapping.

Q.: Is change detection at the habitat type level really an issue?
(Graeme Buchanan)

AS: Yes, definitely, you need information on it.
DE: Not in the least because of the existing legislation.

Q.: How can remote sensing be useful for Natura 2000 reporting?
(?)

DE: Natura 2000 is in fact just the network of protected areas. But don’t forget that article 17 asks for reporting on the whole national territory. Some countries have already a lot of data available, e.g. England, but for other countries there is only little available, e.g. some Mediterranean countries. They often only have information on national parks. Data on the location of broad habitats would already be very useful in these cases. Remote sensing can definitely help in that!
FG: Earth observation has its limits and it will never replace traditional techniques, but the challenge is to establish where remote sensing and in-situ can be combined. Remote sensing can have different roles:
1) It can provide full coverage OR it can help to increase our sample sizes (provided we can establish a link with in-situ data).
2) It can also provide background information or new impressions, new aspects of the environment (e.g. mapping of linear features can be easier with remote sensing than in the field).

Q.: We know that Earth observation can deliver information for specific fields of research that you simply cannot get in any other way. Are there such kinds of information in the field of habitat mapping as well? (Geoff Groom)

BD: Let’s not forget about aerial photo’s, which are crucial to many field mapping surveys. This is also remote sensing.
AS: Yes, there are things, e.g. biochemical and biophysical variables. These could prove useful in habitat quality assessment.
GDB: Ecologists seem to be quite conservative when it comes to habitat quality: they tend to express it in terms of species and structures. But you could also think of other aspects indicating quality: e.g. plant health, water stress, biomass production,… Remote sensing can deliver on this.
DE: Another example: Is the hydrological cycle in an area functioning correctly? This is very difficult to find out with traditional mapping.

NVC: When it comes to using remote sensing, the question should not be OR but AND: where can remote sensing facilitate your field mapping work? E.g. providing insight in restricted areas (military areas), focussing fieldwork on areas where a lot of change seems to have occurred,… Remote sensing facilitates monitoring.
MB: It may be a good idea to look into the (near) future and see what satellites and sensors will be available (e.g. Sentinel-2 will have 13 bands).

Q.: Wouldn’t it be great to have samples across Europe as a baseline to aid in habitat mapping with remote sensing? Such calibration sites could serve as a calibration for satellite sensors but also for derived products. (Sander Mücher)

MB: Indeed, an in-situ sampling system (network building) is interesting and there is probably also money available to establish it (through FP7).
DE: May be ALTER-net, the network of long-term ecosystem research sites in Europe, could play a role in this?
GDB: Indeed, it does, through the EBONE project. This project aims at setting up a biodiversity monitoring scheme for Europe, integrating remote sensing data with data from selected field sites.
MB: It may also be of interest to know that the German Aerospace Center (DLR) is currently establishing a spectral library.

Q.: Imagine tomorrow the Minister of our department approves a budget for monitoring, and we are allowed to use remote sensing for it. How do we proceed then? Where can I find out whether remote sensing would be useful for my problem and if yes, which methods to apply? To whom should I address my problem? (Matthias Engelbeen)
GDB: This is a typical question that many potential users may be confronted with. So, dear panel members, your answers may very well be the take-home message for a lot of people in this audience!

NVC/FG: There is no simple answer to this, but an important thing to keep in mind would be to consult several possible partners or bring several partners together. If you would stick to just one partner, you would probably end up using his specialisation, regardless of whether this is the best approach for your problem.

Geoff Groom: 'Intermediating trained professionals' as FG mentioned in her presentation can be very helpful in this.

Q.: What if you need data over larger areas, and not just locally. Where does one turn to? Is there funding available?

CE: The Joint Research Centre has some products for the whole of Europe, e.g. forest masks.

DE: The only database on land cover for the whole of Europe is CORINE land cover. Although it has important drawbacks for research on habitats, it is the only thing available.

FG: In the future, countries may provide funding for nationwide coverage. E.g. the Defra incentive to have 25 cm ground resolution images for the whole of the UK every 3 years.

NVC: An image processing chain is ideal in this respect. By applying different algorithms on the same set of images, you can get more out of one image set.

Final remarks

Reflecting on the workshop, the general feeling is that the workshop evoked fruitful discussions and that there is much interest for the topic. It's suggested to create a more structural platform for dialogue between vegetation ecologists and remote sensing experts, e.g. through an online discussion forum. Funding may also be available through an FP7 specific support action or COST action. Some think of DG Environment as the best placed intermediator for this.

Meanwhile, GDB invites everyone to continue the work and spread the word.

The panel discussion and the workshop is closed at 16h45.