



As a part of the LIM project, agricultural buildings were inventoried in the study areas. The building type most often converted and given new functions between 1992 and 2003 was livestock buildings. Photo: The National Heritage Board.

support has directly led to improved management, or it has simply been extended primarily to grasslands which already were well-managed. The latter would still mean that agri-environment schemes are contributing to maintaining management in these areas.

Between 1996 and 2001 the management intensity changed for some areas. On grasslands covered by agri-environment schemes, management in-

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creased more often than decreased (4.9% and 2.5% respectively), while the opposite was true for grasslands not covered by the schemes. However, aerial interpretation is difficult and can lead to both over- and underestimations when classifying management.

CONVERSION OF AGRICULTURAL BUILDINGS

The agricultural buildings in the study areas were inventoried in 1992, 1996 and 2003. Livestock buildings were shown to be the building type most often converted and given new functions. The majority of the converted buildings were converted into different types of storage buildings. The number of buildings used for machines and vehicles also increased. Storage and machine buildings were the most frequently constructed building types, while sheds and other small buildings were the most frequently demolished.

Changes in the Agricultural Landscape

A FOLLOW-UP OF THE LIM PROJECT REFERENCE AREAS

THE PROJECT DEVELOPS

In December 1990 the Swedish Environmental Protection Agency was appointed by the government to monitor and evaluate the effects of the new food policies, introduced the same year. The LIM (Landscape Inventory and Monitoring) project was carried out by the Agency, the Swedish Board of Agriculture and the National Heritage Board. When Sweden in 1995 joined the EU, the new food policy reform was not completed. Because of this, the project was instead made a subproject to the Environmental Effects of CAP (Common Agricultural Policy). The final report for the LIM project was published in 1998.

During the years 2001 to 2004, a follow-up was conducted of the 20 reference areas previously studied, as part of the task of continuously monitoring the effects of the agricultural policies, entrusted to the Agency by the government.



Infrared aerial photograph of Eldsberga, one of the study areas of the LIM project. The variations in colour indicate the level of growth on the fields. Also visible are two streams, one following its natural path (top) and one which has been straightened. Photo: LMV/Metria.



Meadow barns are not only characteristic landscape elements, but can also be of ecological value due to the narrow strip of grassland which often encircles them. Between 1996 and 2001, the number of meadow barns was reduced by about six per cent in the study areas. Photo: The National Heritage Board.

LAND TYPES AND LANDSCAPE ELEMENTS

In order to make statistical analysis possible, the patches of land were clas-

ISBN 91-620-8204-3



sified by using infrared aerial photographs of the study areas. The classes used were: field, miscellaneous arable land, improved grassland, semi-natural grassland, woodland, farm yards and other land (which includes managed forests and urban areas). Miscellaneous arable land comprises fields which have not been ploughed for up to ten years, but still have visible signs of previous ploughing.

Landscape elements are divided into two main categories; linear features and point features. Linear features include roads, stone walls, rows of trees, streams and ditches. Single trees, meadow barns and mounds of stones are examples of point features. Lakes and ponds greater than 0.25 ha, and larger watercourses, were registered as areas rather than objects.

CURRENT STATE AND CHANGES IN THE FARMING LANDSCAPE

By comparing agricultural statistics from the Board of Agriculture from the years 1950, 1990 and 2000, a number of developments were identified. The comparison showed that agricultural land decreased during this period. Also, the proportion of fields on the agricultural land and the number of farms decreased.

The follow-up of the LIM project showed that most of the changes between 1950 and 2000 also were true for the study areas between 1996 and 2001.



Remains of an old stone wall, one of the types of linear landscape elements surveyed in the LIM study areas by aerial interpretation. Photo: The Department of Physical Geography and Quaternary Geology, Stockholm University.

The total field area was reduced by 1 369 ha, from 12.9% of the total area to 12.4%. At the same time the proportion of fields with a crop cover increased slightly, from 95.3% to 96.0%.

Improved grassland increased by 0.3 percentage points, and constituted 2.7% of the study areas in 2001. Seminatual grassland decreased (by 0.03 percentage points) to 2.08% of the total area.

Just over a third of the grassland in the study areas was not being managed in 2001. An equal amount of grassland was well-managed, and the remaining 29% had little/moderate management. The management decreased somewhat in areas which consisted of grassland both 1996 and 2001. However, if grasslands which appeared or disappeared during the five year period are included, the extent of management in 1996 and 2001 were roughly the same. (Little/moderately managed land de-

creased by eight per cent while well-managed land increased by three per cent.) Tree and bush coverage increased slightly.

Linear features were reduced by more than two per cent, to an average of 91 m/ha. The tree and bush cover along ditches, streams and straightened watercourses increased fairly markedly.

Point features were reduced by just over three per cent, to an average of 21 units/km². The number of point features with dense tree or bush cover increased by almost 20%.

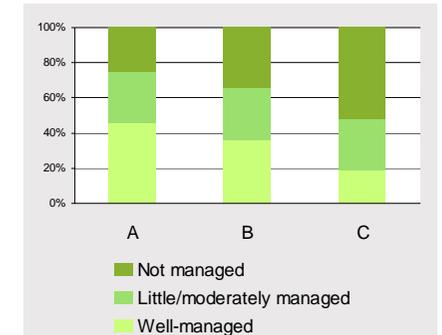
THE EFFECT OF AGRI-ENVIRONMENT SCHEMES

Price support, direct support and agri-environment schemes are some of the most important policy instruments used within CAP. Direct support entails compensation for growing certain crops, or rearing certain livestock. Agri-environment schemes involve compensating farmers who provide environmental services which protect the environment and maintain the countryside. Of those services, management of pastures and meadows is the most suitable for evaluation within the LIM project.

By comparing data for patches in the study areas with the Board of Agriculture's database of land with economic support, conclusions could be drawn about the effect of the agri-environment schemes. The comparison showed that

semi-natural grasslands were subject to agri-environment schemes more often than improved grasslands (45% and 25% respectively). The former were also to a larger extent than the latter registered in the Board of Agriculture's database. This is positive, since it indicates that the agricultural policies have succeeded in embracing the semi-natural grasslands. However, large areas of grassland are still not being managed, i.e. the potential increase in meadow and pastureland is considerable, given the right financial conditions.

Management was significantly better in 2001 on grasslands covered by agri-environment schemes than those not covered. This outcome could have arisen in two ways: either the financial



In 2001, management was most extensive in areas covered by agri-environment schemes (bar A). Areas not covered by agri-environment schemes, while subject to other economic support, were slightly less well-managed (bar B), and areas without any support were the least well-managed (bar C). This could be an indication that the agri-environment schemes have succeeded in increasing interest in management of grasslands.