

INVESTIGATION OF THE PROPERTIES TO INVENTORY THE GROUND AND VEGETATION THROUGH
PHOTOINTERPRETATION

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The investigation was based on the idea that, with suitable arrangements of filters and by using the additive colour system, it is possible to change colour relations by using colour and colour-infrared films. This was accomplished so that by using red, blue and green filters the mutual relations and amounts of the complementary colours of these colours were changed, as the negative was in an enlarger. With this method it is possible to make numerous pictures with varying tone of colours from one negative. Because every layer of colour and false-colour film has certain spectral sensitizing the parts of the spectrum forming the photograph can be regulated in certain limits each time. The purpose of the investigation was to search for the most suitable shade of pictures in interpreting ground and vegetation and to compare the film types mentioned.

The photo scale was 1:3000, the camera was Wild RC8 Aviogon, $c = 152.16$ mm. The colour film used was "Kodak Ektachrome Aero Film Type 8442" and the colour-infrared film was "Kodak Ektachrome Aero Film Type 8442-125-3". The flight was made on 20.7.1967 between 12.30 - 14.50.

Comparison between the different shades was performed so that the same line of each shade was scanned by a microdensitometer. This line had been previously investigated in the terrain and for this reason it could be verified if certain objects of the terrain were visible on the pictures and how distinctly. Of the measuring with the microdensitometer red, blue and green filter were used separately in the equipment, and the entire performed comparison of shades plus the investigation of photointerpretation property was based on the derived values of density. Based on the results derived from the measurements above the best picture shades were chosen for every film type, separately for interpretation of the terrain, vegetation and dampness rela-

tions. Comparisons between the shades proved to be best were made by using statistical tests. The average densities of different objects carried out by measurements of the highest accuracy were then used as the basis. The significance of the differences of these average densities was investigated through variance analysis and its variations.

As a result it can be verified that the suitable shade of pictures in this case improved their interpretation properties. The colour relations need not necessarily be true to nature using ordinary colour film and in general the darker shades prove to be best.

Vegetation was the easiest to interpret from shades of an ordinary colour film, by using colour-infrared film the interpretation did not succeed as well. On the contrary dampness relations were distinctly visible in shades made by colour-infrared film, while on the other hand in the case of colour film the dampness differences could not be observed. Here a similar area was investigated so that the vegetation differences should not influence the result.

The ground in the case in question was easier to interpret from colour-infrared pictures because dry areas, primarily sand- and gravel soils then appeared quite visible. Likewise sod land could be separated. Because the investigation was based only on density differences, the result using colour film was not quite so good. Only sod land could be under certain conditions separated from soil consisting of mineral matter. On the contrary, separation of different mineral matters from each other was nearly impossible. In field areas alterations of content in humus of the soil and in the dampness were noted.

In conclusion we can verify the best result from the standpoint of interpretation can be achieved by using suitable shades of both colour and colour-infrared film, which are considered at the same time. Thus more information from the area to be investigated can be obtained than only one film type can give.

The investigation in question is based on too little information carried out by only one flight and therefore the results obtained can not be generalized. Abundant additional investigations are necessary for the development of the usefulness and the best technique of this method.