# The beginning of the Sussex Study

A 50th Anniversary reprint from the Game Research Association Annual Report 1968


Game & Wildlife CONSERVATION TRUST

# THE
# GAME RESEARCH ASSOCIATION

(FOUNDED 1960)

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# ANNUAL REPORT
# FOR 1968

Edited by J. S. Ash

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# PRESIDENT'S FOREWORD

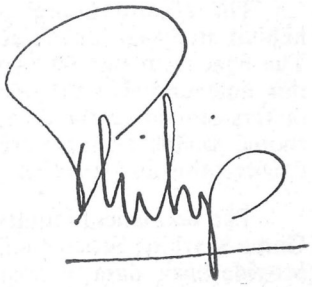
BUCKINGHAM PALACE

Research provides the facts and figures upon which we can base improvements in management whether it be in industry or in the countryside through farming, forestry or game.

All the existing Associations and Societies concerned with game, wildfowl or deer depend upon the support of a few dedicated enthusiasts but they all need the backing of research if they are to achieve their various purposes. I hope it will be possible to arrange much closer relations and co-operation in the research effort of all these organisations.

Research is a waste of time and money if the results are not distributed or put into effect. This too should be a co-operative effort because game management and the conservation of wildlife and the countryside go hand in hand.

All this needs sound financial support and I very much hope that something substantial will be forthcoming before it is too late.



1969.

# PROGRESS REPORTS

## PARTRIDGE SURVIVAL PROJECT

The Partridge Survival Project is planned to identify and investigate the causes of the recent decrease in the survival rate of Grey Partridge *(Perdix perdix)* chicks.

In an analysis (Potts *et al.*, in press) of data for the period 1888-1968 the mean national breeding density of Grey Partridges and Red-legged Partridges *(Alectoris rufa),* on areas where game has been managed, has declined since the 1920's (Fig. 1). This decline has been accompanied by a marked increase in the variability of the breeding density, and more than 52% of this variation is due to variation in chick survival rate.

Normally, low densities of partridges have a high rate of increase, but this has not been the situation in any of the years 1965-68. In fact in these years chick survival rate is almost half of what it should have been on the basis of the population dynamics of 1888-1964.

### STUDY AREAS

The main study area consists of 3,000 acres of farmland mainly barley, on the South Downs at North Farm, Washington, West Sussex. This area has the advantage that detailed records of the age structure of the population, of the number of birds released, of the breeding density and of the chick survival rate have been kept since about 1958. A very similar area 5 miles to the west has been included in the study as a control area since releasing is not carried out there. Both areas are particularly favourable Grey Partridge habitat; in the peak years 1960-61 the density was near the maximum recorded for the species. A supplementary area is being investigated in North Yorkshire where game is unmanaged and Partridges are increasing.

### PROGRAMME OF RESEARCH

Although some observations were made in the summer of 1968 the study was not started until October. Most of the programme refers to the urgent need for a detailed study of the food available to the chick:

(a) Regular censuses including observations on the behaviour of individually marked samples of both wild and released adults (radio-telemetry will be used in the summer, but not in 1969).

(b) About 400 pairs are expected to nest in the main study area — as many as possible will be followed through from laying to the August census.

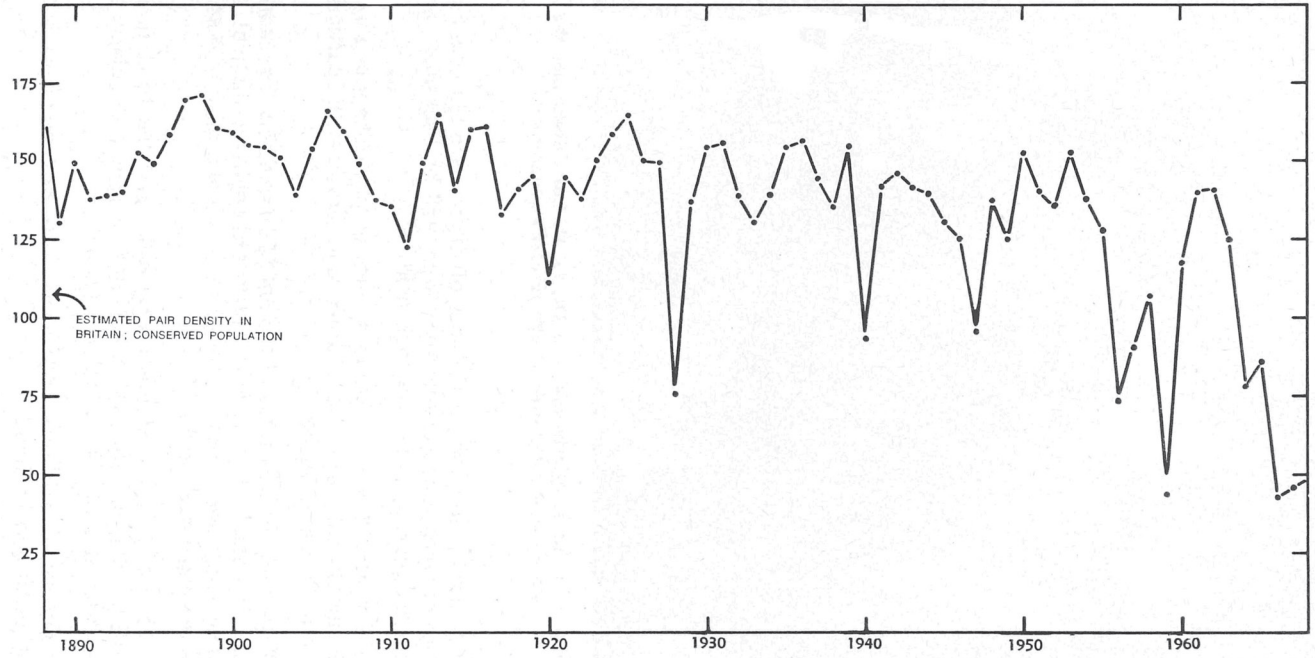



**Figure 1. Change in breeding density (pairs per 1,000 acres) of partridges (Perdix perdix and Alectoris rufa) in Britain from 1888 to 1968. Note the steady decline, the increasing variability and the low recovery rate from 1964-1968. A decline of about −15% is predicted from 1968 to 1969**

**Professor T. R. E. Southwood and Dr. G. R. Potts discussing the entomological features of the research programme.**

(c) A survey, initiated in October of the relative abundance of 83 species of weed found in the study area, will be continued using ten 1-metre square quadrats in each field.

(d) The abundance of certain species of phytophagous insects will be monitored throughout June and July, with particular attention to their host plant.

(e) A survey of the status of the ant *(Lasius flavus)* has started since this is abundant in certain areas, although recruitment has failed repeatedly since 1964, and because it was the most important food of the Partridge chick.

(f) The food of laying birds, egg yolks and the food of the chick will be analysed for evidence of deficiencies, particularly the possible deficiency of the amino-acid lysine.

(g) The use of fertilisers, particularly nitrogen, and of pesticides is being monitored in detail.

(h) Very detailed post mortem examinations will continue. The incidence of gapes *(Syngamus)* in relation to the summer weather and the pheasant density will continue to be investigated since those affected have been shown to be significantly below normal weight.

## ADDITIONAL WORK: RESULTS

Examination of the autumn food of the Grey Partridge shows that the main wild foods are seeds of the genus *Polygonum*, especially Black Bindweed *(P. convolvulus)*, seed capsules of Chickweed *(Stellaria media)* and seed heads of the Meadow grass *(Poa annua)*, but eighteen species were recorded in 232 Partridge crop analyses. The diet has been compared to the incidence of weeds on the stubble, to similar data collected before the widespread use of chemical herbicides and to recent trends in the weed populations (Potts, in prep.).

## REFERENCES

Potts, G. R. (in prep.). The autumn food of the Partridge *(Perdix perdix)* in relation to the composition of the stubble flora.

Potts, G. R., Howells. G. and Huband, P. (in prep.). Recent decline of the Partridge *(Perdix perdix)*.

G. R. Potts

# Dick Potts (1939-2017)

The Partridge Survival Project started in 1968 in a Portakabin on North Farm, South Downs, West Sussex. With his farming background and ecological insight, Dick Potts realised that to understand changes in partridge abundance, he needed to understand changes in the partridge environment. So began one of the most important, longest running and inspirational research projects on the ecology of partridges and arable farmland.

At the same time, Dick initiated a detailed study of cereal ecosystems that became known as "The Sussex Study". At the time, such work on farmland ecosystems was truly groundbreaking and controversial given that previous thinking on conservation concentrated on pristine habitats, not those worked by man to produce food, fuel or fibre. In partnership with Southampton University alone, at least 20 doctoral theses were written based on the cereal ecosystem and inspired by Dick's pioneering work.

Dick's drive, enthusiasm, vision and 'can do' attitude inspired several generations of scientists and his legacy continues in the GWCT.

*These photographs from the same spot in 1977 and 2017 show the change in cropping on the study site.*


*We still use a traditional DVAC to collect samples in order to ensure consistency.*

## The Sussex Study

The Partridge Survival Project began in 1968 as an investigation into the causes of the decline in numbers of the grey partridge. Over 50 years the project has continued and become recognised simply as The Sussex Study. It is now the longest-running monitoring project in the world that measures the impact of changes in farming on the fauna and flora of arable land.
**www.gwct.org.uk/sussex**

## Game & Wildlife Conservation Trust

In 1969 the Game Research Association merged with the ICI Game Research Station to form the Game Conservancy. In 1980 it was registered as a research and education charity, becoming The Game Conservancy Trust, and in 2007 became the Game & Wildlife Conservation Trust to better reflect the depth and breadth of its scientific research.

The Game & Wildlife Conservation Trust charitable objects are:

- To promote for the public benefit, the conservation of game and its associated flora and fauna.
- To conduct research into game and wildlife management (including the use of game animals as a natural resource) and the effects of farming and other land management practices on the environment, and to publish the useful results of such research.
- To advance the education of the public and those managing the countryside in the effects of farming and management of land which is sympathetic to game and other wildlife.
- To conserve game and wildlife for the public benefit including: where it is for the protection of the environment, the conservation or promotion of biological diversity through the provision, conservation, restoration or enhancement of natural habitat; or the maintenance or recovery of a species in its natural habitat on land or in water and in particular where the natural habitat is situated in the vicinity of a landfill site.



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