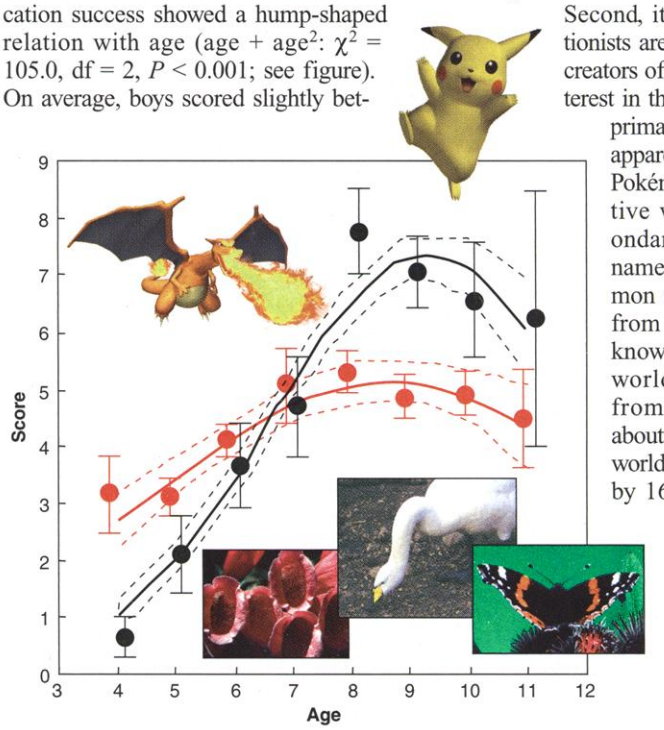
Why Conservationists Should Heed Pokémon

ACCORDING TO E. O. WILSON'S BIOPHILIA hypothesis (*1*), humans have an innate desire to catalog, understand, and spend time with other life-forms. This in turn provides a powerful aesthetic argument for combating the present extinction crisis. Yet, as industrialization and urbanization reduce our direct interactions with nature, our interest in the variety of living things is perhaps becoming redirected toward human artifacts, with potentially grave consequences for biodiversity conservation (*2–5*). As Robert Pyle writes, "what is the extinction of the condor to a child who has never seen a wren?" (*6*, p. 147).

To quantify children's knowledge of nature and shed light on the premise that their innate interest in diversity is nowadays being met by man-made variety, we surveyed 109 UK primary schoolchildren aged 4 to 11 to assess their knowledge of both natural and unnatural history. Each child was asked to identify from flashcards 10 types of British wildlife and 10 "species" of Pokémon, characters in the card-trading game invented by Satoshi Tajiri to give today's urban children a chance to collect creatures in the way he did as a child (*7*). Each child's set of 10 wildlife cards included at least two plants, two invertebrates, two mammals, and two birds picked randomly from a set of 100 common UK species, and the 10 Pokémon cards were drawn randomly from among 100 of the basic set of 150 Pokémon types; the order of presentation of Pokemón and wildlife cards was randomized, and a different card set was used for each child. Children aged 4 to 7 were interviewed orally, whereas older children wrote their answers down. For wildlife, the level of detail needed for identifications to be scored as correct varied across taxa, with mammals requiring genus level identification (e.g., "hare") and invertebrates requiring only ordinal classification (e.g., "beetle").

Overall identification scores varied markedly across children, but there was only a moderate correlation between individuals' scores for wildlife and for Pokémon ($r_{s\ corr} = 0.31$, $N = 109$, $P < 0.01$), with the effects of pupils' age and sex differing between card types. A generalized linear model of overall score with a Poisson error structure and with child's age, age^2, the child's sex, the organism type (wildlife or Pokémon), and their interactions as possible predictors accounted for 43.2% of the deviance in scores. Identification success showed a hump-shaped relation with age (age + age^2: $\chi^2 = 105.0$, df = 2, $P < 0.001$; see figure). On average, boys scored slightly better than girls (sex: $\chi^2 = 19.59$, df = 1, $P < 0.001$), but only because of girls' poorer performance at Pokémon (organism type * sex: $\chi^2 = 23.92$, df = 1, $P < 0.001$). The effect of age differed with organism type (organism type * age + organism type * age^2: $\chi^2 = 18.85$, df = 2, $P < 0.001$). For wildlife, mean identification success rose from 32% at age 4 to 53% at age 8 and then fell slightly; for Pokémon, it rose from 7% at age 4 to 78% by age 8, with children aged 8 and over typically identifying Pokémon "species" substantially better than organisms such as oak trees or badgers.



The associations between children's age and score for wildlife (red dots and lines) and Pokémon (black dots and lines) questions. The symbols represent mean scores for each age, and the bars represent one standard error. The solid fitted lines represent predictions from the final model, and the dotted lines represent one standard error around the fitted line. The symbols have been shifted 0.1 years to the right for Pokémon scores and 0.1 years to the left for wildlife scores to improve clarity.

Our findings carry two messages for conservationists. First, young children clearly have tremendous capacity for learning about creatures (whether natural or man-made), being able at age 8 to identify nearly 80% of a sample drawn from 150 synthetic "species." Second, it appears that conservationists are doing less well than the creators of Pokémon at inspiring interest in their subjects: During their primary school years, children apparently learn far more about Pokémon than about their native wildlife and enter secondary school being able to name less than 50% of common wildlife types. Evidence from elsewhere links loss of knowledge about the natural world to growing isolation from it (*3*, *4*). People care about what they know. With the world's urban population rising by 160,000 people daily (*8*), conservationists need to reestablish children's links with nature if they are to win over the hearts and minds of the next generation. Is Ecomon the way ahead?

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References and Notes

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