



Enrollment Trends in American Soil Science Programs Since 2007

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Introduction

- As we entered the 20th Century there were many concerns in the USA about the declining numbers of students enrolled in soil science programs (Collins, 2008).
- Surveys showed declining numbers (Baveye et al., 2006) even though overall student numbers in American colleges were on the rise (U.S. Department of Education, 2013).
- At the same time membership in soil science professional societies was declining (Figure 1).
- This study was conducted to investigate soil science enrollment trends over the last seven years (2007-2014) at American colleges and universities.
- The results of this study have been reported in more detail in Brevik et al. (2014).

Materials and Methods

- Fourteen universities that offer undergraduate and/or graduate programs in soil science were surveyed for their enrollments over the time period 2007-2014 (the last seven academic years).
- The 14 schools represent about 20% of the institutions that offer soil science degrees/programs in the USA.
- Thirteen institutions submitted undergraduate data and 10 submitted graduate data, which was analyzed by individual institution and in aggregate.
- Simple linear regression was used to find the slope of best-fit trend lines.
- For individual institutions, a slope of ≥ 0.5 (on average, the school gained 0.5 students per year or more) was considered to be growing enrollment, ≤ -0.5 was considered shrinking enrollment, and between -0.5 and 0.5 was considered to be stable enrollment.
- For aggregated data, the 0.5 slope standard was multiplied by the number of schools in the aggregated survey to determine whether enrollment was growing, shrinking, or stable.

References

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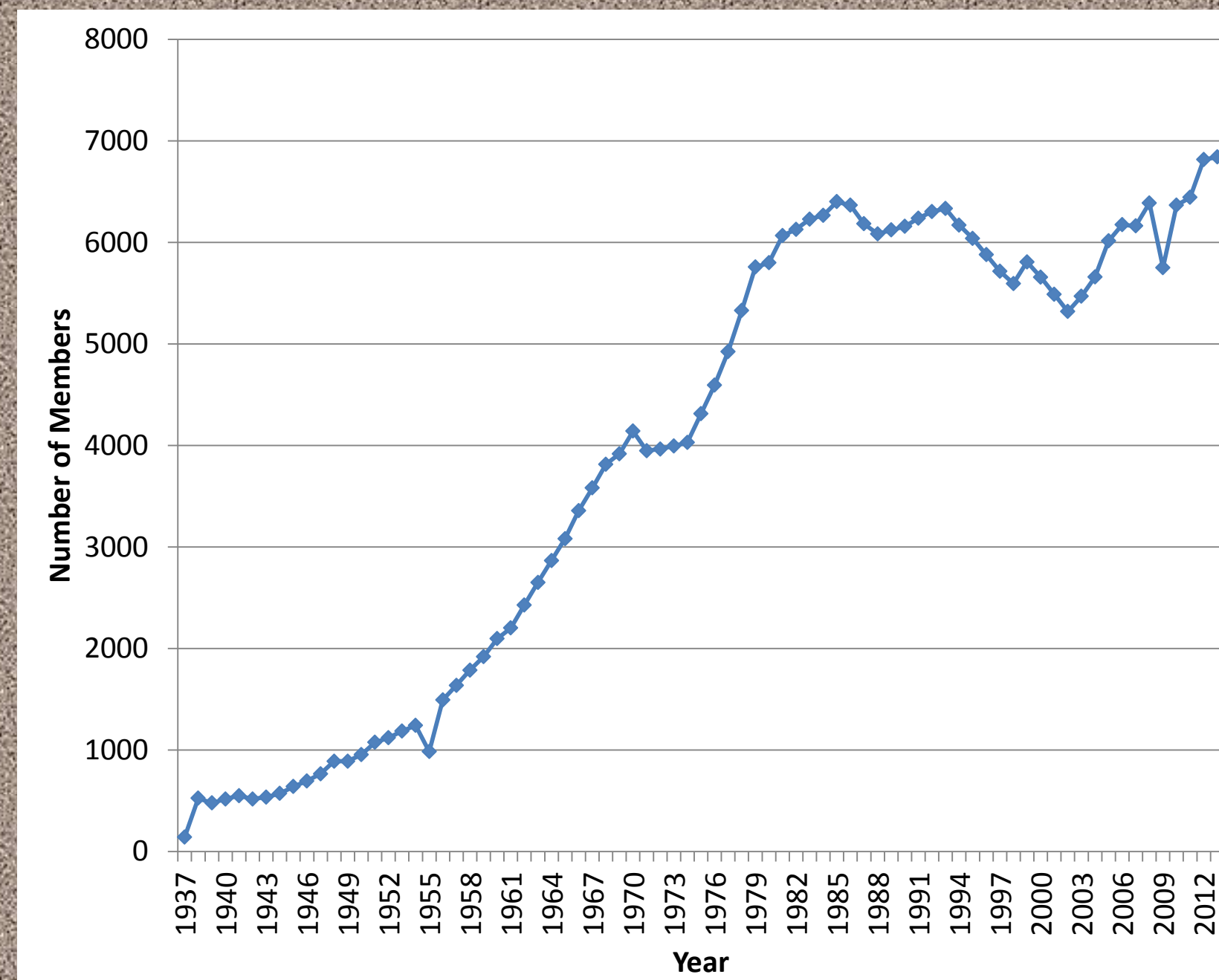


Figure 1. Historical membership in the Soil Science Society of America. Note the sharp drop from 1993-2002, a time that corresponds to declining soil science student numbers.

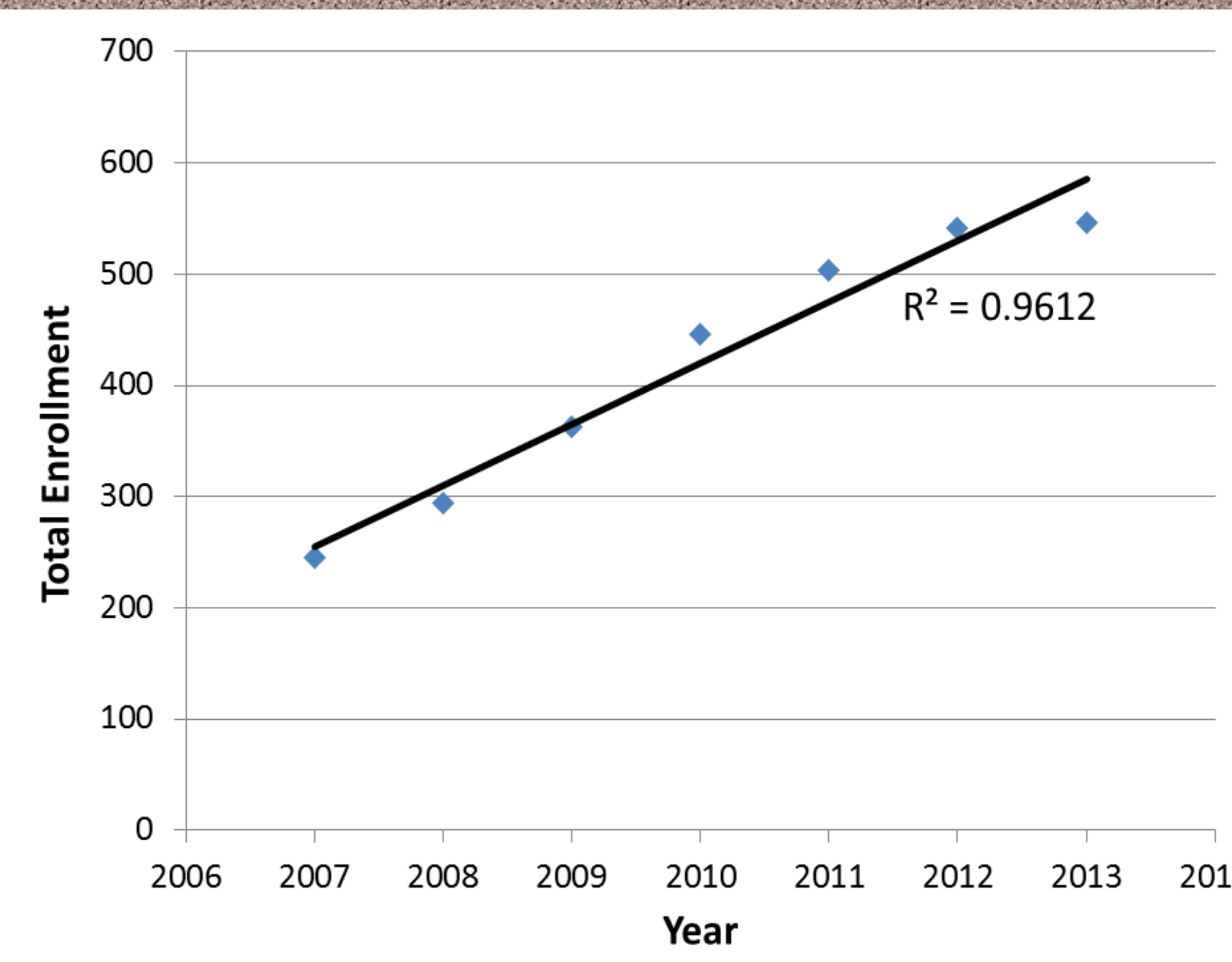


Figure 2. Composite undergraduate enrollment data from the ten schools in the United States that submitted at least seven years of enrollment data with best fit trend line.

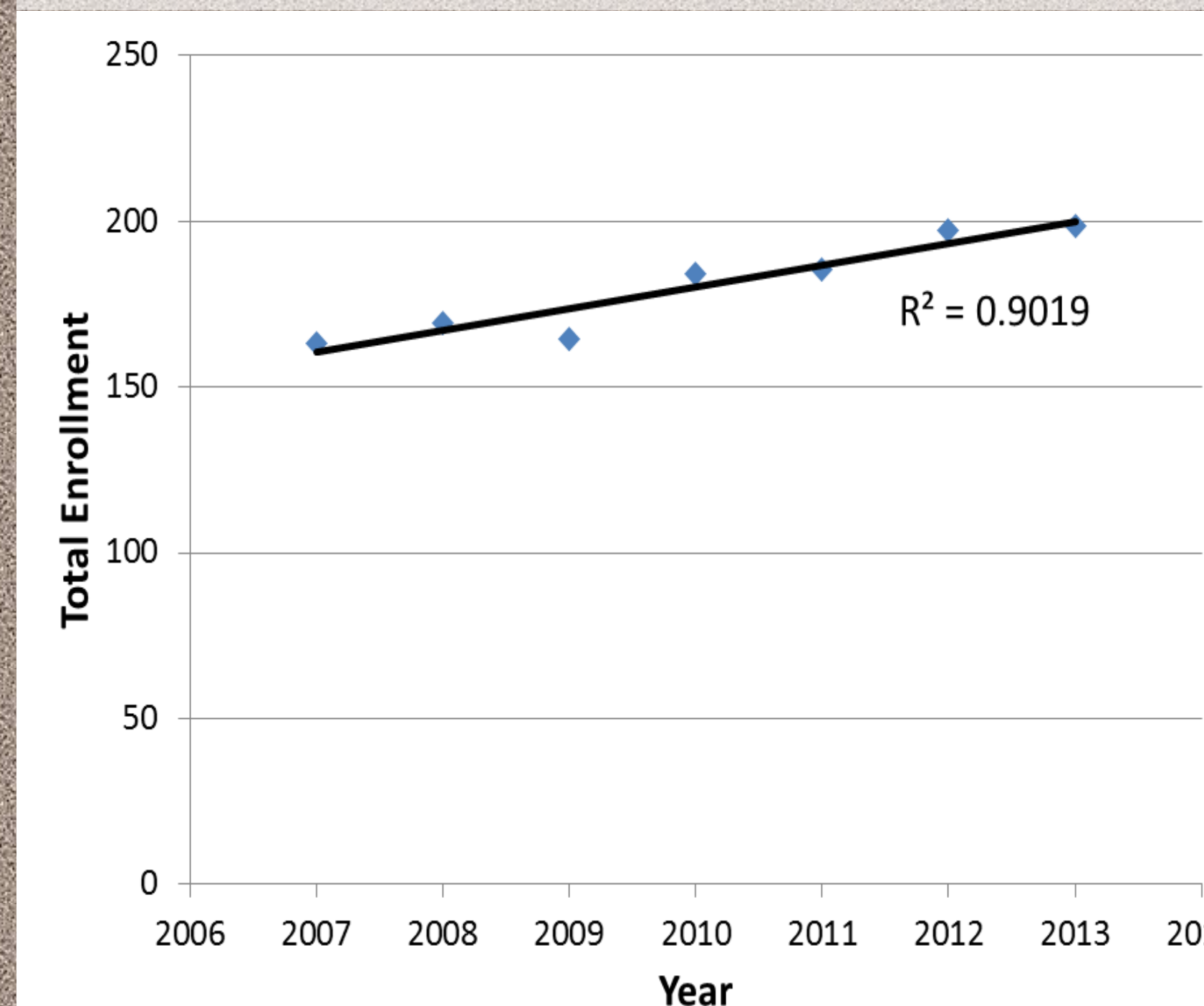


Figure 3. Composite undergraduate enrollment data from the schools in the United States that submitted at least seven years of enrollment data, excluding the largest school, with best fit trend line.

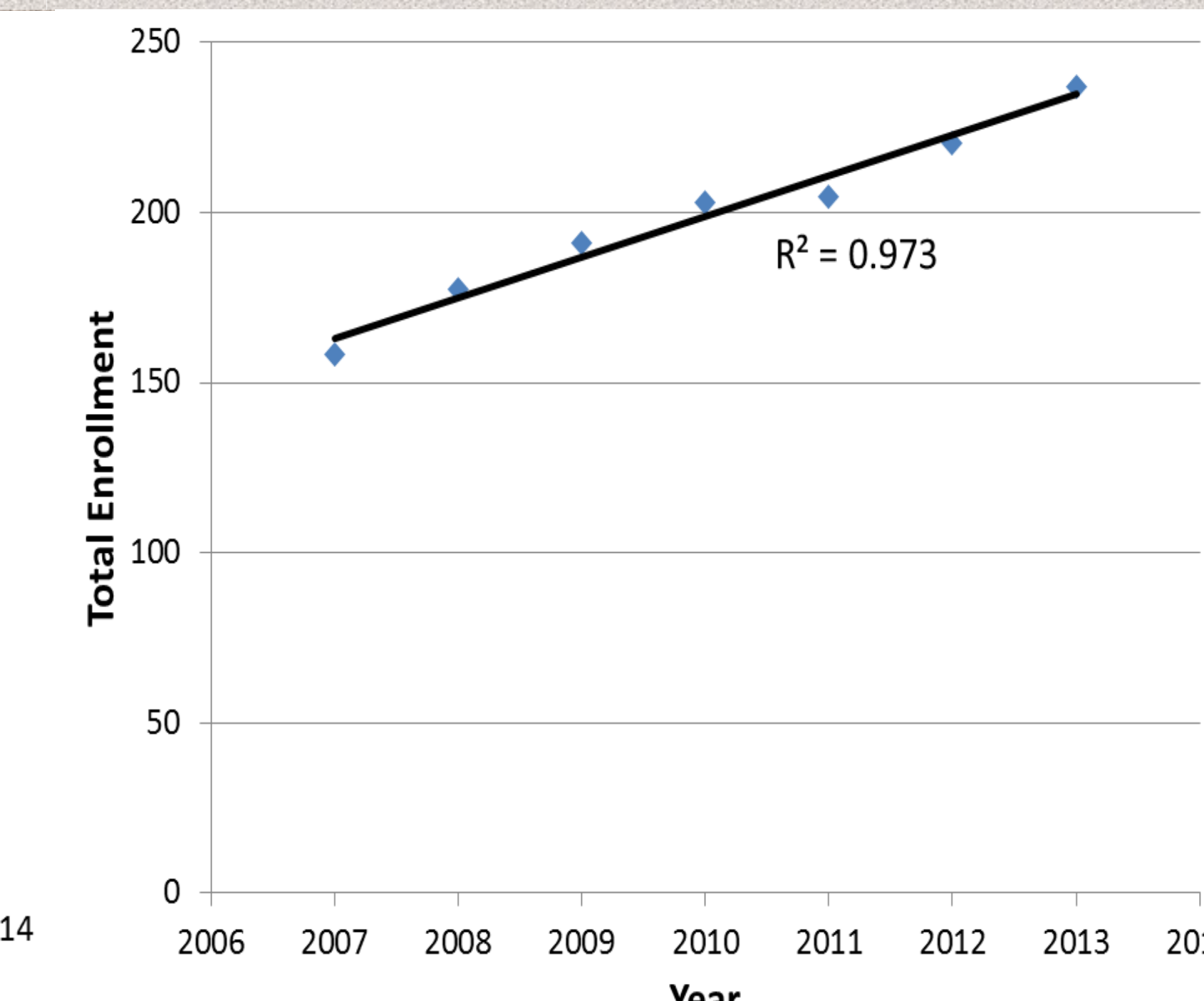


Figure 4. Composite graduate enrollment data from the seven schools in the United States that submitted at least seven years of enrollment data with best fit trend line.

Results and Discussion

- Over the period of the study, six of the 13 schools reporting undergraduate data showed enrollment gains, five of the 13 showed stable enrollments, one of the 13 showed declining enrollments, and one of the 13 discontinued their undergraduate degree program.
- The linear regression trend line for the undergraduate schools' composite data had a slope of 55.0 students/year ($R^2 = 0.96$) (Figure 2), indicating a strong overall trend of undergraduate enrollment growth at these schools.
- However, the largest school had also seen large growth in enrollment. To ensure that this one institution was not masking an overall declining enrollment trend, the regression was also run with that institution removed. This gave a linear trend line with a slope of 6.6 students/year ($R^2 = 0.90$) (Figure 3), indicating more moderate growth but still a trend towards growth in undergraduate enrollment.
- Four of the 10 graduate programs showed enrollment gains, five of the 10 showed stable enrollments, and one of the 10 showed declining enrollments.
- The linear regression trend line for the composite graduate school data had a slope of 12.0 students/year ($R^2 = 0.97$) (Figure 4), indicating an overall trend of enrollment growth at these schools.
- As a whole, both the undergraduate and graduate programs investigated showed moderate growth trends, which represent a reversal of enrollment trends reported at the beginning of the 21st Century.
- Challenges in obtaining the data used for this study included 1) differences in data collection and archiving by institutions and 2) only some schools still offer a soil science degree; many schools offer another degree (e.g., agricultural studies, agronomy, environmental resource science, environmental science, plant and soil science, etc.) with a soils option or emphasis.
- In the second case it was necessary to identify which students in these other degree programs pursued the soil science option or emphasis.

Conclusions

- A survey of enrollment trends at universities in the United States showed that 46% of the surveyed undergraduate programs had trends of increasing enrollment, 39% had steady enrollment, and only 15% had declining enrollment (the school that discontinued their undergraduate soil science program during the study was included in the declining enrollment group) (n=13)
- 40% of graduate programs reported trends of increasing enrollment, 50% had steady enrollment, and 10% had declining enrollment (n=10)
- This survey represents a reversal of the declining soil science enrollment trends found at North American universities by Baveye et al. (2006) in a survey of student numbers from 1992 to 2004



Students learning to describe soil in the field.