

Literature cited

- Allison, P. D. 1978. Measures of inequality. *American Sociological Review* 43:865-880.
- Amateis, R. L. and H. E. Burkhart. 1987. Cubic-foot volume equations for loblolly pine trees in cutover, site-prepared plantations. *Southern Journal of Applied Forestry* 11:190-192.
- Amateis, R. L., P. J. Radtke, and H. E. Burkhart. 1995. TAU YIELD: A stand-level growth and yield model for thinned and unthinned loblolly pine plantations. School of Forestry and Wildlife Resources, VPI&SU. Loblolly Pine Growth and Yield Research Cooperative. Report No. 82. 38p.
- Amateis, R. L., H. E. Burkhart, and S. M. Zedaker. 1983. The loblolly pine spacing studies: a progress report. School of Forestry and Wildlife Resources, VPI&SU. Loblolly Pine Growth and Yield Research Cooperative. Report No. 23. 6p.
- Assmann, E. 1970. *The Principles of Forest Yield Study*. Pergamon Press, New York. 506p.
- Atkinson, A. B. 1970. On the measurement of inequality. *Journal of Economic Theory* 2:244-263.
- Bailey, R. L. and T. R. Dell. 1973. Quantifying diameter distributions with the Weibull function. *Forest Science* 19:97-104.
- Baker, F. S. 1923. Notes on the composition of even aged stands. *Journal of Forestry* 21:712-717.
- Balmer, W. E., E. G. Owens, and J. R. Jorgensen. 1975. Effects of various spacings on loblolly pine growth 15 years after planting. USDA For. Serv. Res. Note SE-211. 7p.

- Bendel, R. B. and B. P. Carlin. 1988. Parametric relationships among the skewness coefficient, the coefficient of variation and the Gini coefficient for common distributions. Technical Report 88-15, Department of Statistics. University of Connecticut, Storrs, Connecticut. 10p.
- Bendel, R. B., S. S. Higgins, J. E. Teberg, and D. A. Pyke. 1989. Comparison of skewness coefficient, coefficient of variation, and Gini coefficient as inequality measures within populations. *Oecologia* 78:394-400.
- Birch, L. C. 1957. The meanings of competition. *The American Naturalist* 91:5-18.
- Black, J. N. 1957. The early vegetative growth of three strains of subterranean clover. (*Trifolium subterraneum* L.) in relation to seed size. *Australian Journal of Agricultural Research* 8:1-14.
- Blackman, V. H. 1919. The compound interest law and plant growth. *Annals of Botany* 33:353-360.
- Blanche, C. A., J. D. Hodges, and T. E. Nebeker. 1985. A leaf area - sapwood ratio developed to rate loblolly pine vigor. *Canadian Journal of Forest Research* 15:1181-1184.
- Bliss, C. I. and K. A. Reinker. 1964. A lognormal approach to diameter distributions in even-aged stands. *Forest Science* 10:350-360.
- Borders, B. E. and W. D. Patterson. 1990. Projecting stand tables: a comparison of the Weibull diameter distribution methods, a percentile-based projection method, and a basal area growth projection method. *Forest Science* 36:413-424.
- Borders, B. E., R. A. Souter, R. L. Bailey, and K. D. Ware. 1987. Percentile-based distributions characterize forest stand tables. *Forest Science* 33:570-576.
- Brand, D. G. and S. Magnussen. 1988. Asymmetric, two-sided competition in even-aged monocultures of red pine. *Canadian Journal of Forest Research* 18:901-910.
- Brand, D. G., G. F. Weetman, and P. Rehler. 1987. Growth analysis of perennial plants: The relative production rate and its yield components. *Annals of Botany* 59:45-53.
- Burkhart, H. E., D. C. Cloeren, and R. L. Amateis. 1985. Yield relationships in unthinned loblolly pine plantations on cutover, site-prepared lands. *Southern Journal of Applied Forestry* 9:84-91.

- Burkhart, H. E., K. D. Farrar, R. L. Amateis, R. F. Daniels. 1987. Simulation of individual tree growth and stand development in loblolly pine plantations on cutover, site-prepared areas. Virginia Polytechnic Institute and State University, School of Forestry and Wildlife Resources, publ. FWS 1-87. 47p.
- Burkholder, P. R. 1952. Cooperation and conflict among primitive organisms. *American Scientist* 40:601-631.
- Cajanus, W. 1914. Über die Entwicklung gleichaltriger Waldbestände. *Acta forestalia fennica* 3:1-142.
- Cannell, M. G. R., P. Rothery, and E. D. Ford. 1984. Competition within stands of *Picea sitchensis* and *Pinus contorta*. *Annals of Botany* 53:349-362.
- Clements, F. E., J. E. Weaver, and H. C. Hanson. 1929. Plant Competition: An analysis of community functions. Carnegie Institution of Washington. 340p.
- Clutter, J. L. And F. A. Bennett. 1965. Diameter distribution in old-field slash pine plantations. Ga. Forest Res. Council Report 13.
- Clutter, J. L. and E. P. Jones. 1980. Prediction of growth after thinning old-field slash pine plantations. USDA Forest Service Research Paper. SE-217, 14p.
- Czarnowski, M. S. 1961. Dynamics of even-aged forest stands. Louisiana State University Press, Baton Rouge. 132p.
- Dawkins, H. C. 1983. Multiple comparisons misused: why so frequently in response-curve studies? *Biometrics* 39:789-790.
- Devan, J. S. and H. E. Burkhart. 1982. Polymorphic site index equations for loblolly pine based on a segmented polynomial differential model. *Forest Science* 28:544-555.
- Donald, C. M. 1963. Competition among crop and pasture plants. *Advances in Agronomy* 15:1-118.
- Evans, G. C. 1972. *The Quantitative Analysis of Plant Growth*. University of California Press, Berkeley. 734p.
- Fisher, R. A. 1921. Some remarks on the methods formulated in a recent article on "The quantitative analysis of plant growth". *Annals of Applied Biology* 7:367-372.

- Ford, E. D. 1975. Competition and stand structure in some even-aged plant monocultures. *Journal of Ecology* 63:311-333.
- Ford, E. D. and P. J. Newbould. 1970. Stand structure and dry weight production through the sweet chestnut (*Castanea sativa* Mill.) coppice cycle. *Journal of Ecology* 58:275-296.
- Gates, D. J., R. McMurtrie, and C. J. Borough. 1983. Skewness reversal of distribution of stem diameter in plantations of *Pinus radiata*. *Australian Journal of Forestry Research* 13:267-270.
- Gini, C. 1914. Sulla misura della concentrazione e della variabilita del caratteri, *Atti del R. Istituto Veneto*, Vol. 73:1913-1914.
- Goulding, C. J. 1979. Validation of growth models used in forest management. *New Zealand Journal of Forestry* 24:108-124.
- Greenhouse, S. W. and S. Geisser. 1959. On methods in the analysis of repeated measures designs. *Psychometrika* 49:95-112.
- Grime, J. P., J. C. Crick, and J. E. Rincon. 1986. The ecological significance of plasticity. *In: Plasticity in Plants*. (eds. D. H. Jennings and A. J. Trewaves) pp. 5-29.
- Gumpertz, M. L. and C. Brownie. 1993. Repeated measures in randomized block and split-plot experiments. *Canadian Journal of Forest Research* 23:625-639.
- Harms, W. R. and F. T. Lloyd. 1981. Stand structure and yield relationships in a 20-year-old loblolly pine spacing study. *Southern Journal of Applied Forestry* 5:162-165.
- Harper, J. L. 1961. Approaches to the study of plant competition. *In: Mechanisms in Biological Competition*. F. L. Milthorpe (ed.). *Symp. Soc. exp. Biol.* 15:1-39.
- Harper, J. L. 1967. A Darwinian approach to plant ecology. *Journal of Ecology* 55:247-270.
- Harper, J. L. 1977. *Population Biology of Plants*. Academic Press, New York. 892p.
- Harrison, W. C. and R. F. Daniels. 1988. A new biomathematical model for growth and yield of loblolly pine plantations. *In IUFRO Forest Growth Modelling and Prediction Conference*, Minneapolis, MN, Aug 1987. *USDA For. Serv. Gen. Tech. Rep. NC-120*. pp. 293-304

- Haskel, E. F. 1949. A clarification of social science. *Main Currents in Modern Thoughts* 7:45-51.
- Hilt, D. E. 1983. Individual-tree diameter growth model for managed, evenaged, upland oak stands. USDA For Serv Research Paper NE-533. 15p.
- Hoaglin, D. C, F. Mosteller, and J. W. Tukey. 1983. *Understanding Robust and Exploratory Data Analysis*. John Wiley & Sons, Inc. New York. 447p.
- Hozumi, K., H. Koyama, and T. Kira. 1955. Intraspecific competition among higher plants. IV. A preliminary account on the interaction between adjacent individuals. *J. Inst. Polytech. Osaka City Univ. Ser. D.* 6:121-130.
- Hughes, A. P. and P. R. Freenam. 1967. Growth analysis using frequent small harvests. *Journal of Applied Ecology* 4:553-560.
- Hunt, R. 1978. *Plant Growth Analysis*. Camelot Press Ltd, Southampton. 67p.
- Hunt, R. 1982. *Plant Growth Curves: The Functional Approach to Plant Growth Analysis*. University Park Press, Baltimore. 248p.
- Hutchings, M. J. and C. S. J. Budd. 1981. Plant competition and its course through time. *Bioscience* 31:640-645.
- Huynh, H. and L. S. Feldt. 1970. Conditions under which mean square ratios in repeated measures designs have exact *F*-distributions. *Journal of the American Statistical Association* 65:1582-89.
- Johnson, N. L. and S. Kotz. 1970. *Continuous Univariate Distributions-1*. John Wiley & Sons, New York. 300p.
- Kira, T. H., Ogawa, and N. Sakasaki. 1953. Intraspecific competition among higher plants. I. Competitive-yield-density interrelationships in regularly dispersed populations. *J. Inst. Polytec. Osaka City Univ., Series D.* 4:1-26.
- Knox, R. G., R. K. Peet, and N. L. Christensen. 1989. Population dynamics in loblolly pine stands: changes in skewness and size inequality. *Ecology* 70:1153-1166.
- Koyama, H. and T. Kira. 1956. Intraspecific competition among higher plants. VIII. Frequency distribution of individual plant weight as affected by the interaction between plants. *J. Inst. Polytec. Osaka City Univ., Series D.* 7:73-94.

- Larocque, G. R. and P. L. Marshall. 1993. Evaluating the impact of competition using relative growth rate in red pine (*Pinus resinosa* Ait.) stands. *Forest Ecology and Management* 58:65-83.
- Liu, J. and H. E. Burkhart. 1993. Dynamics of size-variable distribution parameters in juvenile loblolly pine (*Pinus taeda* L.) stands. *Forest Ecology and Management* 58:321-347.
- Lorenz, M. O. 1905. Methods of measuring the concentration of wealth. *Journal of the American Statistical Association* 9:209-219.
- Lloyd, F. T. and W. R. Harms. 1986. An individual stand growth model for mean plant size based on the rule of self-thinning. *Annals of Botany* 57:681-688.
- Magnussen, S. and D. G. Brand. 1989. A competition process driven growth model for red pine. Petawawa National Forestry Institute, Forestry Canada. Information Report PI-X-89. 37p.
- Marchand, P. J. 1984. Sapwood area as an estimator of foliage biomass and projected leaf area for *Abies balsamea* and *Picea rubens*. *Canadian Journal of Forest Research* 14:85-87.
- McMahon, T. 1973. Size and shape in biology. *Science* 179:1201-1204.
- McMurtrie, R. 1981. Suppression and dominance of trees with overlapping crowns. *Journal of Theoretical Biology* 89:151-174.
- Meredith, M. P. and Stehman, S. V. 1991. Repeated measures experiments in forestry: focus on analysis of response curves. *Canadian Journal of Forest Research* 21:957-965.
- Meyer, W. H. 1930. Diameter distribution series in evenaged stands. Yale University School of Forestry Bulletin No. 28. 105p.
- Meyers, R. H. 1986. *Classical and Modern Regression with Applications*. Duxberry Press, Boston. 359p.
- Miller, R G., Jr. 1966. *Simultaneous Statistical Inference*. McGraw-Hill, New York. 299p.
- Mitscherlich, E. A. 1919. *Landwirtschaftliche jahrbucher* 53:167-182.

- Mohler, C. L., P. L. Marks, and D. G. Sprugel. 1978. Stand structure and allometry of trees during self-thinning of pure stands. *Journal of Ecology* 29:204-211.
- Moser, E. B., Saxton, A. M. and S. R. Pezeshki. 1990. Repeated measures analysis of variance: application to tree research. *Canadian Journal of Forest Research* 20:524-535.
- Munro, D .D. 1974. Forest growth models - a prognosis. p7-21. *In* Growth models for tree and stand simulation. Fries, J. (ed.). Royal College of Forestry, Stockholm. Research Note 30.
- Nelson, T. C. 1964. Diameter distribution and growth of loblolly pine. *Forest Science* 10:105-114.
- Nilsson, U. 1994. Development of growth and stand structure in *Picea abies* stands planted at different initial densities. *Scandinavian Journal of Forest Research* 9:135-142.
- Nygaard, F. and A. Sandstrom. 1989. Income inequality measures based on sample surveys. *Journal of Econometrics* 42:81-95.
- Obeid, M., D. Machin, and J. L. Harper. 1967. Influence of density on plant to plant variation in fiber flax, *Linum usitatissimum* L. *Crop Science* 7:471-473.
- Oderwald, R. G. and R. P. Hans. 1993. Corroborating models with model properties. *Forest Ecology and Management* 62:271-283.
- Perry, D. A. 1985. The competition process in forest stands. *In: Attributes of Trees as Crop Plants*. M. G. R. Cannell and J. E. Jackson, eds. Institute of Terrestrial Ecology, Abbots Ripton, Hunts, England. pp. 481-506.
- Petersen, T. D., Z. Ning, and M. Newton. 1990. Dynamics of size structures in seedling stands of *Fraxinus mandshurica* in Northeast China. *Annals of Botany* 66:255-263.
- Pienaar, L. V. 1989. A stand table projection approach to yield prediction in plantations. *South African Forestry Journal* No. 149: 44-47.
- Pienaar, L. V. and W. M. Harrison. 1988. A stand table projection approach to yield prediction in unthinned even-aged stands. *Forest Science* 34:804-808.

- Radeosevich, S. R. and K. Osteryoung. 1987. Principles governing plant-environment interactions. In: Forest Vegetation Management for Conifer Production (eds. J. D. Walstad and P. J. Kuch). John Wiley and Sons, New York. pp. 105-156.
- Radtke, P. J. 1996. Basal area growth and crown dynamics in a loblolly pine spacing trial. Masters thesis, Virginia Polytechnic Institute and State University. Blacksburg, VA. 49p.
- Reineke, L. H. 1933. Perfecting a stand-density index for even-aged forests. *Journal of Agricultural Research* 46:627-638.
- Reynolds, Jr., M. R., T. E. Burk, and W. Huang. 1988. Goodness-of-fit tests and model selection procedures for diameter distributions models. *Forest Science* 34:373-399.
- Richards, F. J. 1959. A flexible growth function for empirical use. *Journal of Experimental Botany* 10:290-300.
- Richards, F. J. 1969. The quantitative analysis of growth. *In: Plant Physiology - a Treatise. Analysis of Growth: Behavior of Plants and their Organs.* Ed. F. C. Steward, Academic Press, London. pp. 1-76.
- Ritchie, M. W. and D. W. Hann. 1997a. Implications of disaggregation in forest growth and yield modeling. *Forest Science* 43:223-233.
- Ritchie, M. W. and D. W. Hann. 1997b. Evaluation of individual-tree and disaggregative prediction methods for Douglas-fir stands in western Oregon. *Canadian Journal of Forest Research* 27:207-216.
- Robichaud, E. and I. R. Methven. 1992. The applicability of the pipe model theory for the prediction of foliage biomass in trees from natural, untreated black spruce stands. *Canadian Journal of Forest Research* 22:1118-1123.
- Rogers, P. H. 1978. The impact of fertilization on the growth and development of loblolly pine plantations. Masters thesis, North Carolina State University, Raleigh, NC. 50p.
- Ross, M. A. and J. L. Harper. 1972. Occupation of biological space during seedling establishment. *Journal of Ecology* 60:77-88.
- Rowell, R. G. and D. E. Walters. 1976. Analyzing data with repeated observations on each experimental unit. *Journal of Agricultural Science.* 87:423-432.

- SAS. 1990. SAS/STAT User's Guide, Version 6, Fourth Edition. SAS Institute Inc, Cary NC. 1686p.
- Schnur, G. L. 1934. Diameter distributions for old-field loblolly pine stands in Maryland. *Journal of Agricultural Research* 49:731-743.
- Schinozaki, K. and T. Kira. 1956. Intraspecific competition among higher plants. VII. Logistic theory of the C-D effect. *J. Inst. Polytech. Osaka City Univ. Series D.* 7:35-72.
- Schmitt, J., J. Eccleston, and D. W. Ehrhardt. 1987. Dominance and suppression, size-dependent growth and self-thinning in a natural *Impatiens capensis* population. *Journal of Ecology* 75:651-665.
- Schmitt, J., D. W. Ehrhardt, and M. Cheo. 1986. Light-dependent dominance and suppression in experimental radish populations. *Ecology* 67:1502-1507.
- Sen, A. 1973. *On Economic Inequality.* Oxford University Press, Ely House, London. 118p.
- Smith, N. J. and D. W. Hann. 1986. A growth model based on the self-thinning rule. *Canadian Journal of Forest Research* 16:330-334.
- South, D. B. 1991. Testing the hypothesis that mean relative growth rates eliminate size-related growth differences in tree seedlings. *New Zealand Journal of Forestry Science* 21:144-164.
- Strub, M. R., R. B. Vasey, and H. E. Burkhart. 1975. Comparison of diameter growth and crown competition factor in loblolly pine plantations. *Forest Science* 21:427-431.
- Tansley, A. G. 1920. The classification of vegetation and the concept of development. *Journal of Ecology* 8:118-149.
- Tasissa, G., H. E. Burkhart, and R. L. Amateis. 1997. Volume and taper equations for thinned and unthinned loblolly pine trees in cutover, site-prepared plantations. *Southern Journal of Applied Forestry* 21:146-152.
- Theil, H. 1967. *Economics and Information Theory.* North Holland Publ. Comp., Amsterdam.

- Turner, M. D. and D. Rabinowitz. 1983. Factors affecting frequency distributions of plant mass: the absence of dominance and suppression in competing monocultures of *Festuca paradoxa*. *Ecology* 64:469-475.
- Van Andel, J., H. J. M. Nelissen, E. Wattel, T. A. Van Valen, and T. Wassenaar. 1984. Theil's inequality index applied to quantify population variation of plants with regard to dry matter allocation. *Acta Botany Neerlandica* 33:161-175.
- Warne, L. G. G. 1951. Spacing experiments on vegetables. II. The effect of the thinning distance on the yields of globe beet, long beet, carrots and parsnips grown at a standard inter-row distance in Cheshire. *Journal of Horticultural Science* 26:84-97.
- Weiner, J. 1985. Size hierarchies in experimental populations of annual plants. *Ecology* 66:743-752.
- Weiner, J. and O. T. Solbrig. 1984. The meaning and measurement of size hierarchies in plant populations. *Oecologia* 61:334-336.
- Weiner, J. and S. C. Thomas. 1986. Size variability and competition in plant monocultures. *Oikos* 47:211-222.
- Weller, D. E. 1987. A reevaluation of the $-3/2$ power rule of plant self-thinning. *Ecological Monographs* 57:23-43.
- West, C., G. E. Briggs, and F. Kidd. 1920. Methods and significant relations in a quantitative analysis of plant growth. *New Physiologist* 19:200-207.
- Westoby, M. 1982. Frequency distributions of plant size during competitive growth of stands: the operation of distribution-modifying functions. *Annals of Botany* 50:733-735.
- White, J. and J. L. Harper. 1970. Correlated changes in plant size and number in plant populations. *Journal of Ecology* 58:467-485.
- Yoda, K., T. Kira, H. Okawa, and H. Hozumi. 1963. Self-thinning in overcrowded pure stands under cultivated and natural conditions. *J. Biol. Osaka City Univ.* 14:107-129.
- Zedaker, S. M. 1982. The competition-release enigma: adding apples and oranges and coming up with lemons. *In Proc., Second Biennial Southern Silvicultural Research Conference, Atlanta, GA. USDA Forest Service, Southeastern Forest Experiment Station, Athens, GA. Gen. Tech. Rep. SE-24. pp. 357-364.*

- Zeide, B. 1986. Diameter increment line and stand development. *In: Environmental Influences on Tree and Stand Increment*. Editors D. S. Solomon and T. B. Brann. Maine Agricultural Experiment Station, University of Maine, Misc. Publ. 691. pp. 123-128.
- Zeide, B. 1987. Analysis of the $3/2$ power law of self-thinning. *Forest Science* 33:517-537.
- Zhang, L., J. A. Moore, and J. D. Newberry. 1993. Disaggregating stand volume growth to individual trees. *Forest Science* 39:295-308.
- Zhang, S., H. E. Burkhart, R. L. Amateis. 1997. The influence of thinning on tree height and diameter relationships in loblolly pine plantations. *Southern Journal of Applied Forestry* (in press).

Appendix A. Figures of Individual-tree Relative Growth Rates versus Relative Size

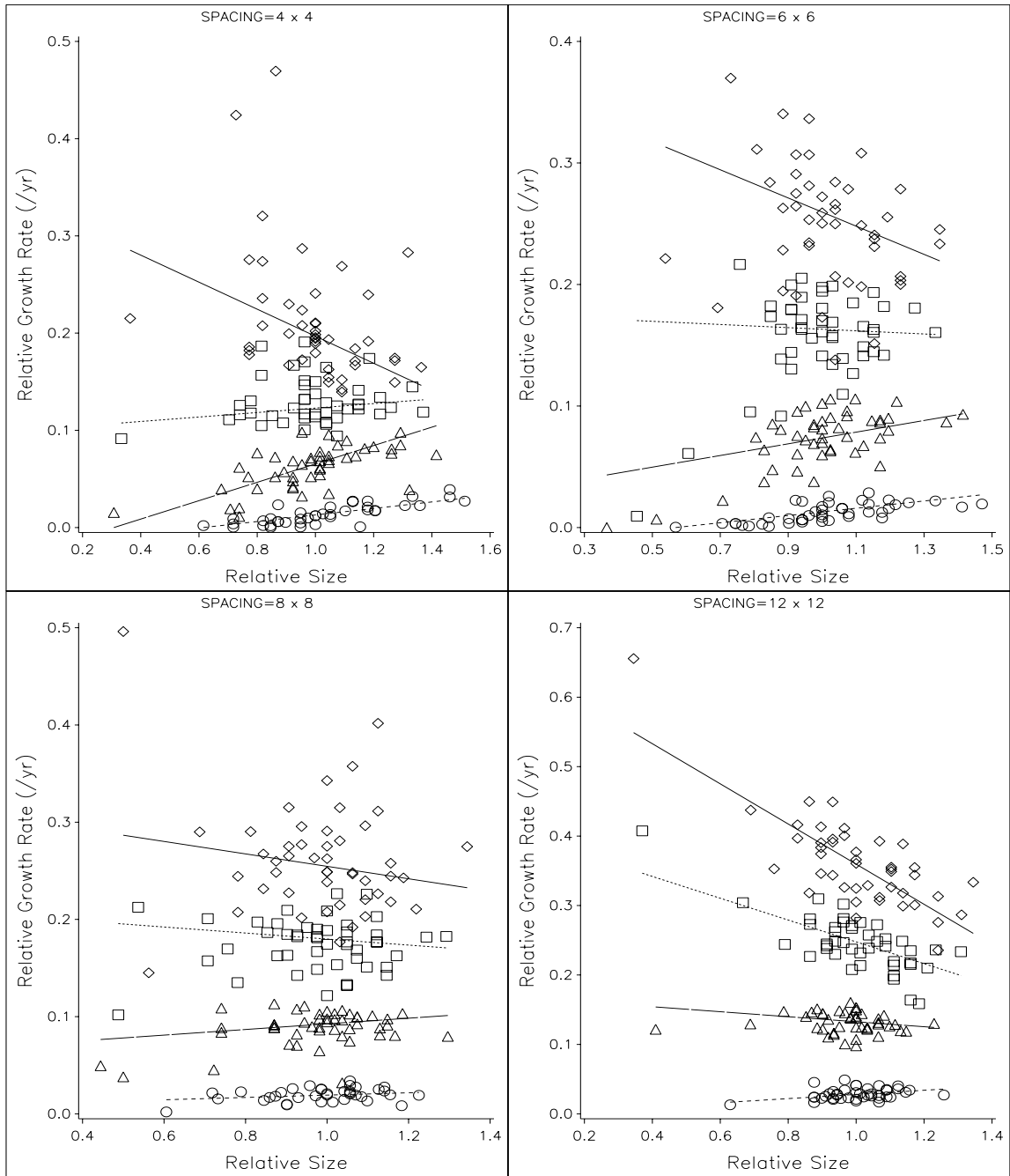


Figure A.1. Individual tree relative growth rates by relative size and age (location 1, block 1) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 14-years of age.

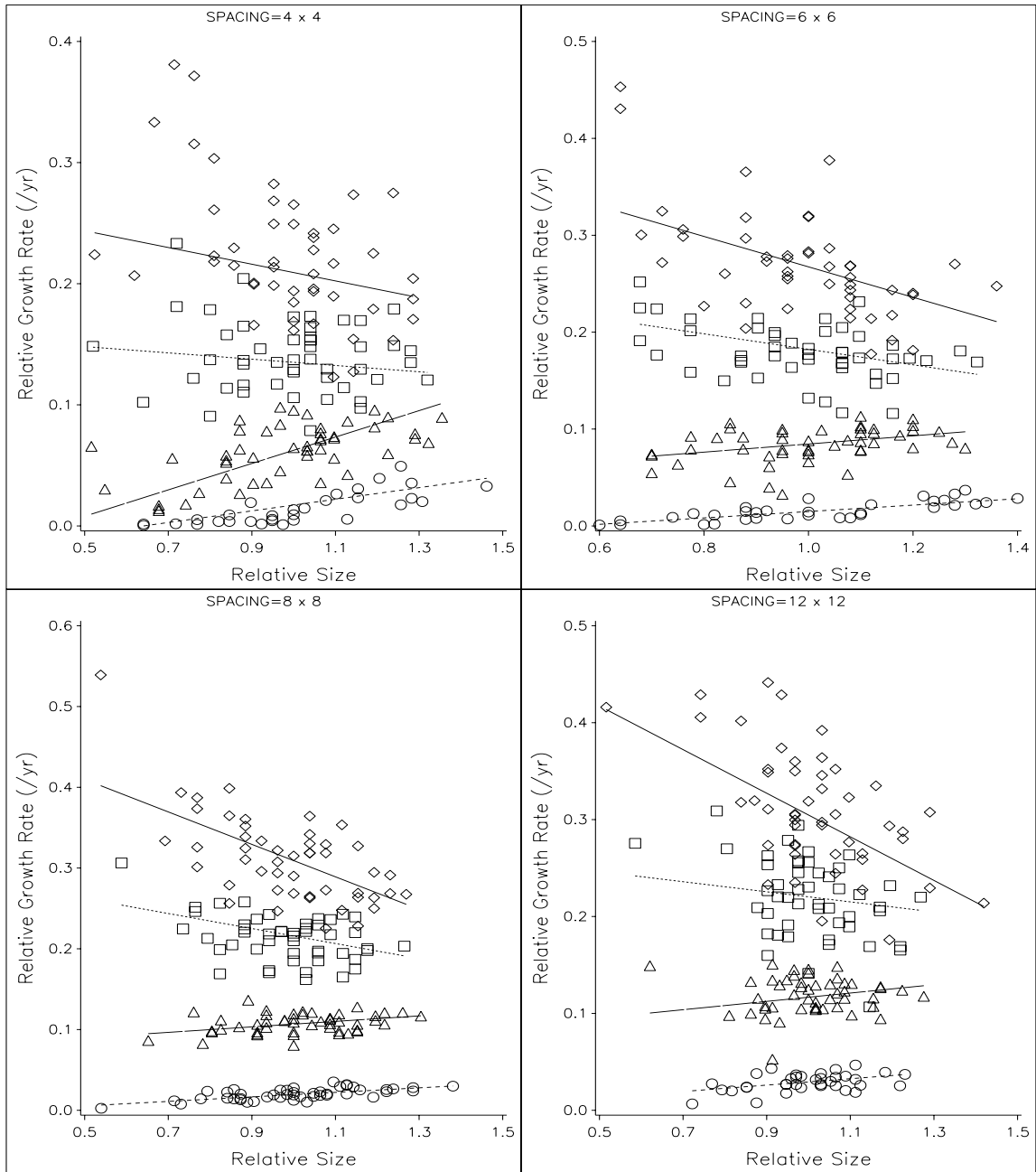


Figure A.2. Individual tree relative growth rates by relative size and age (location 1, block 2) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 14-years of age. (Note: One tree with a relative growth rate of 0.9 is not shown on the 4 x 4 spacing.)

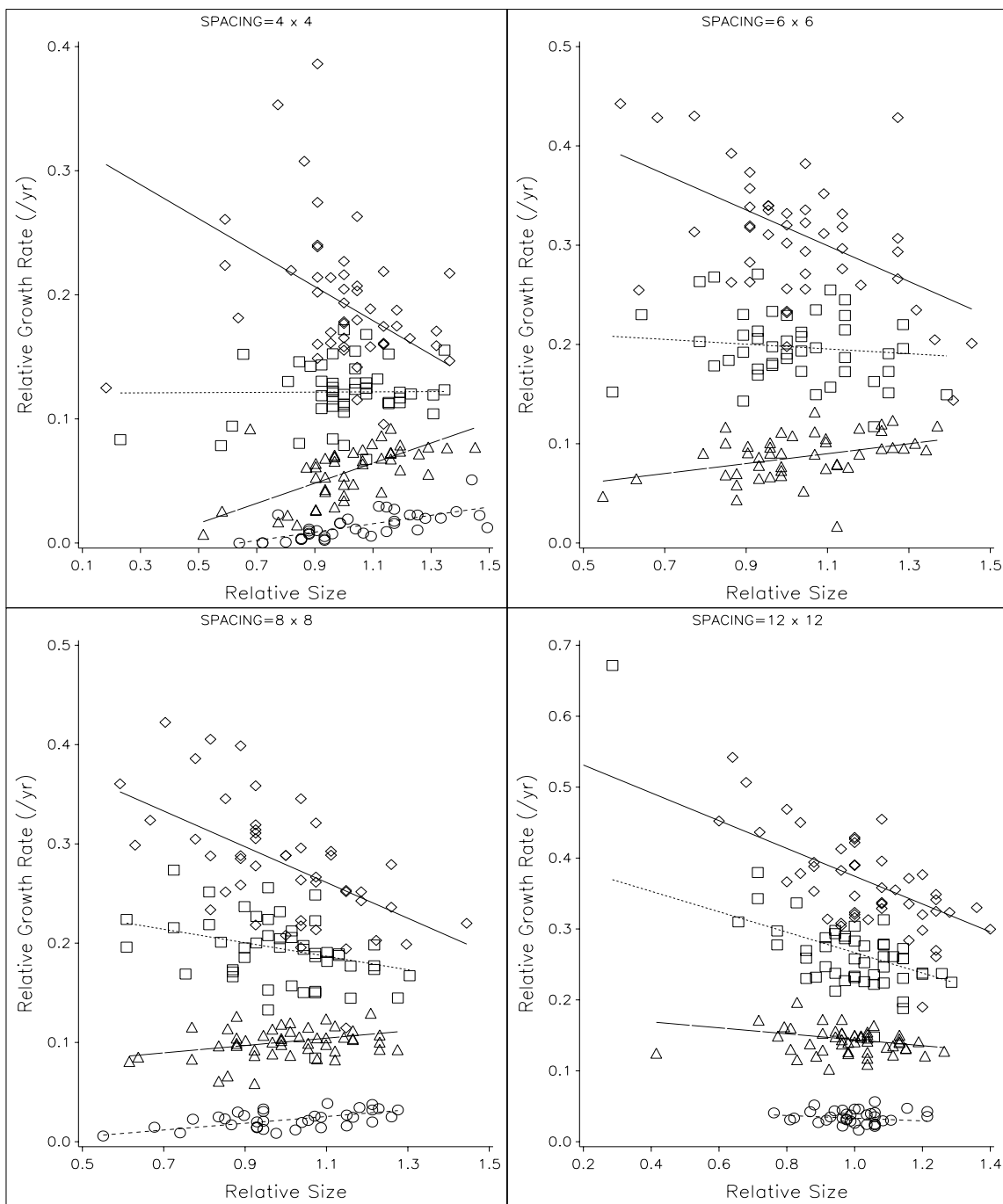


Figure A.3. Individual tree relative growth rates by relative size and age (location 1, block 2) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 14-years of age.

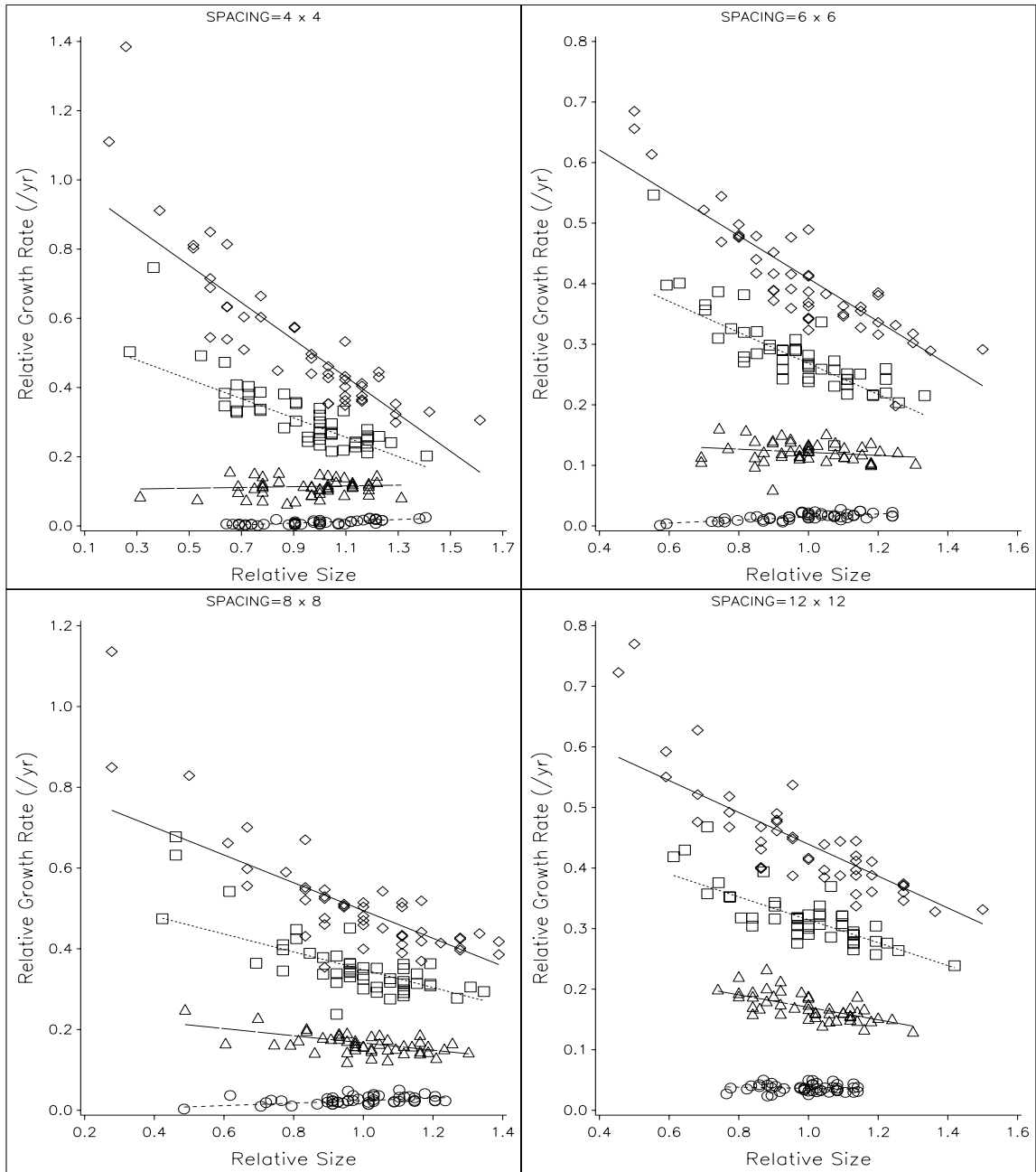


Figure A.4. Individual tree relative growth rates by relative size and age (location 2, block 1) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 14-years of age. (Note: One tree with a relative growth rate of 1.05 is not shown on the 6 x 6 spacing.)

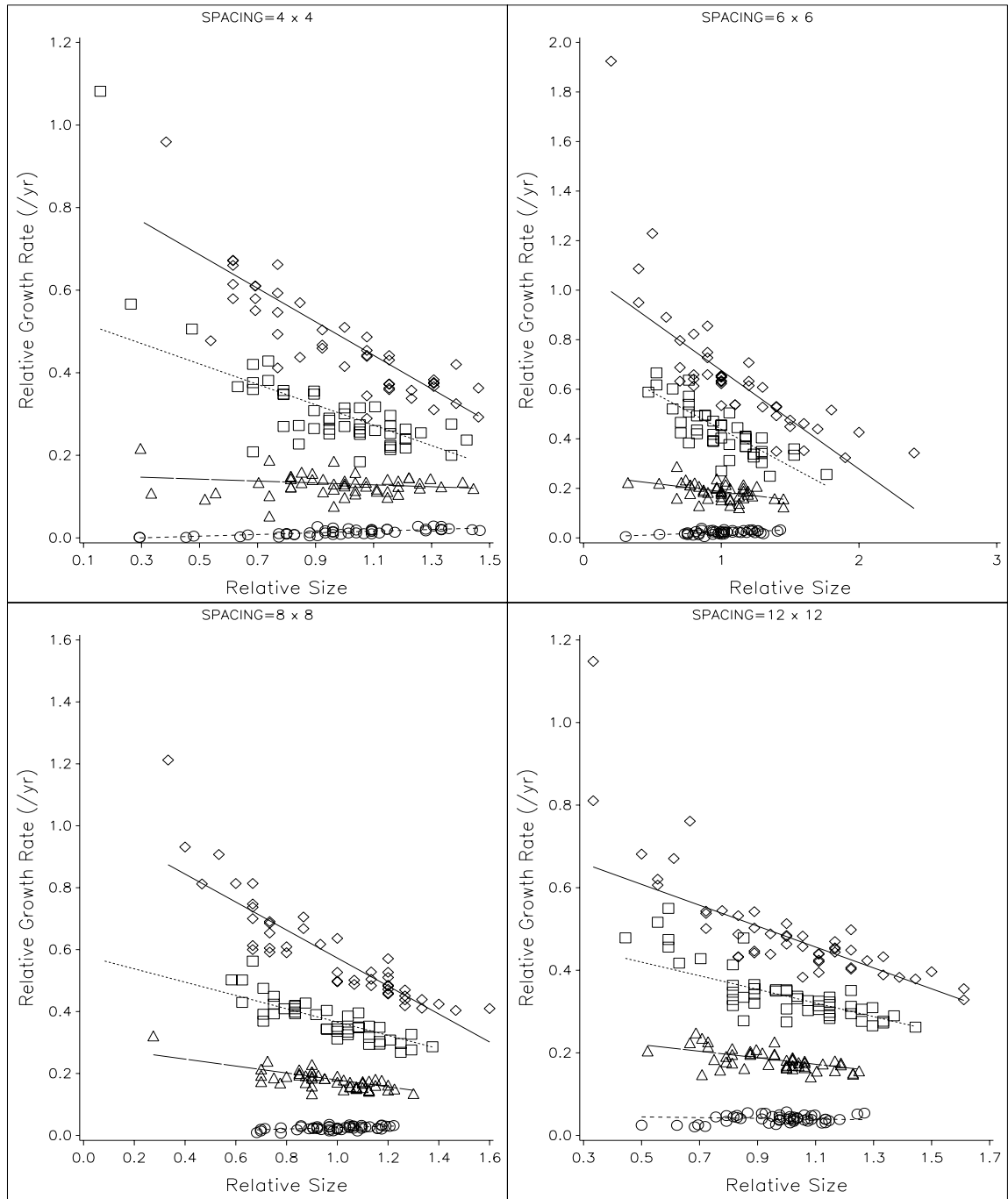


Figure A.5. Individual tree relative growth rates by relative size and age (location 2, block 2) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 14-years of age.

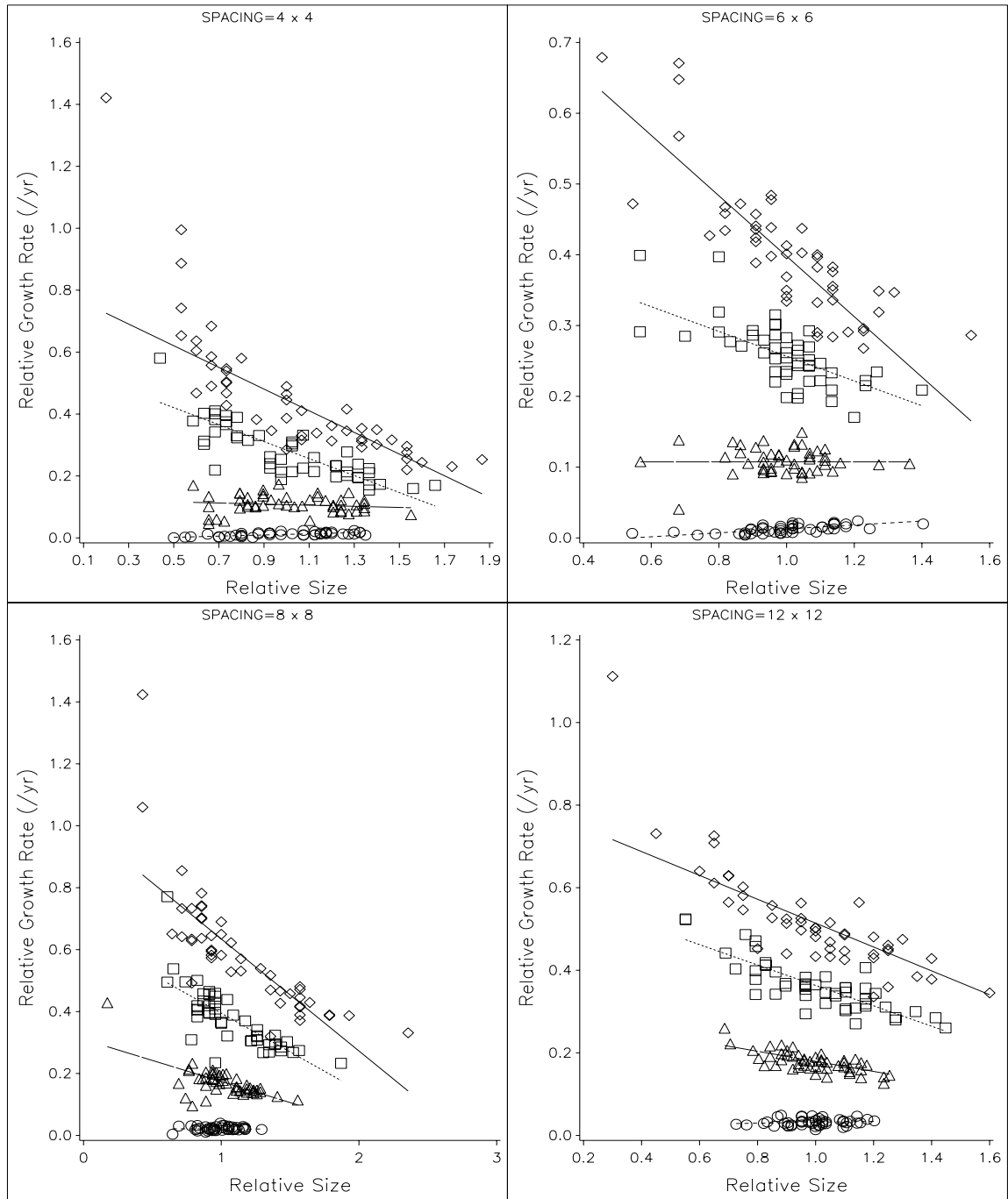


Figure A.6. Individual tree relative growth rates by relative size and age (location 2, block 3) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 14-years of age.

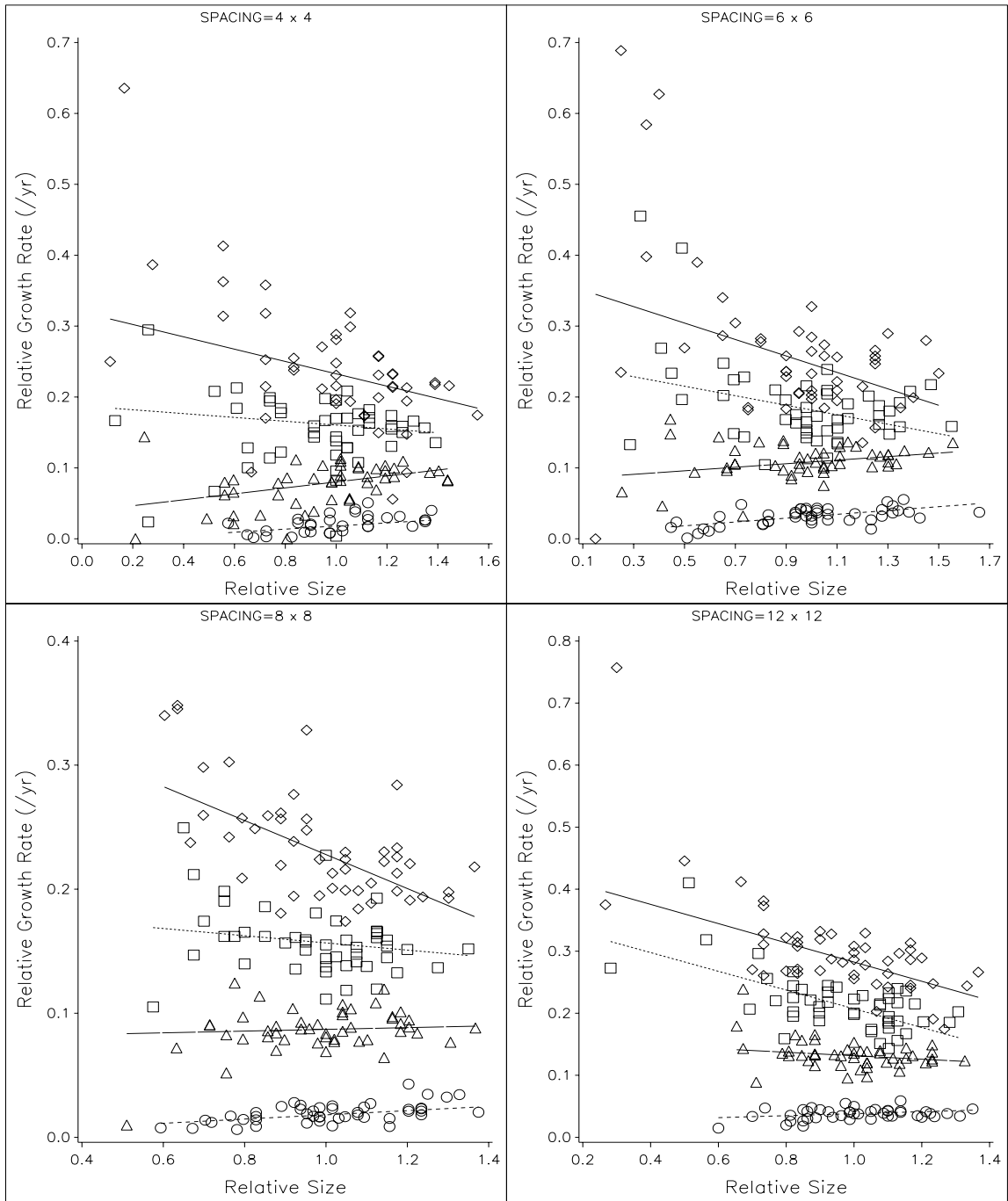


Figure A.7. Individual tree relative growth rates by relative size and age (location 3, block 1) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 14-years of age.

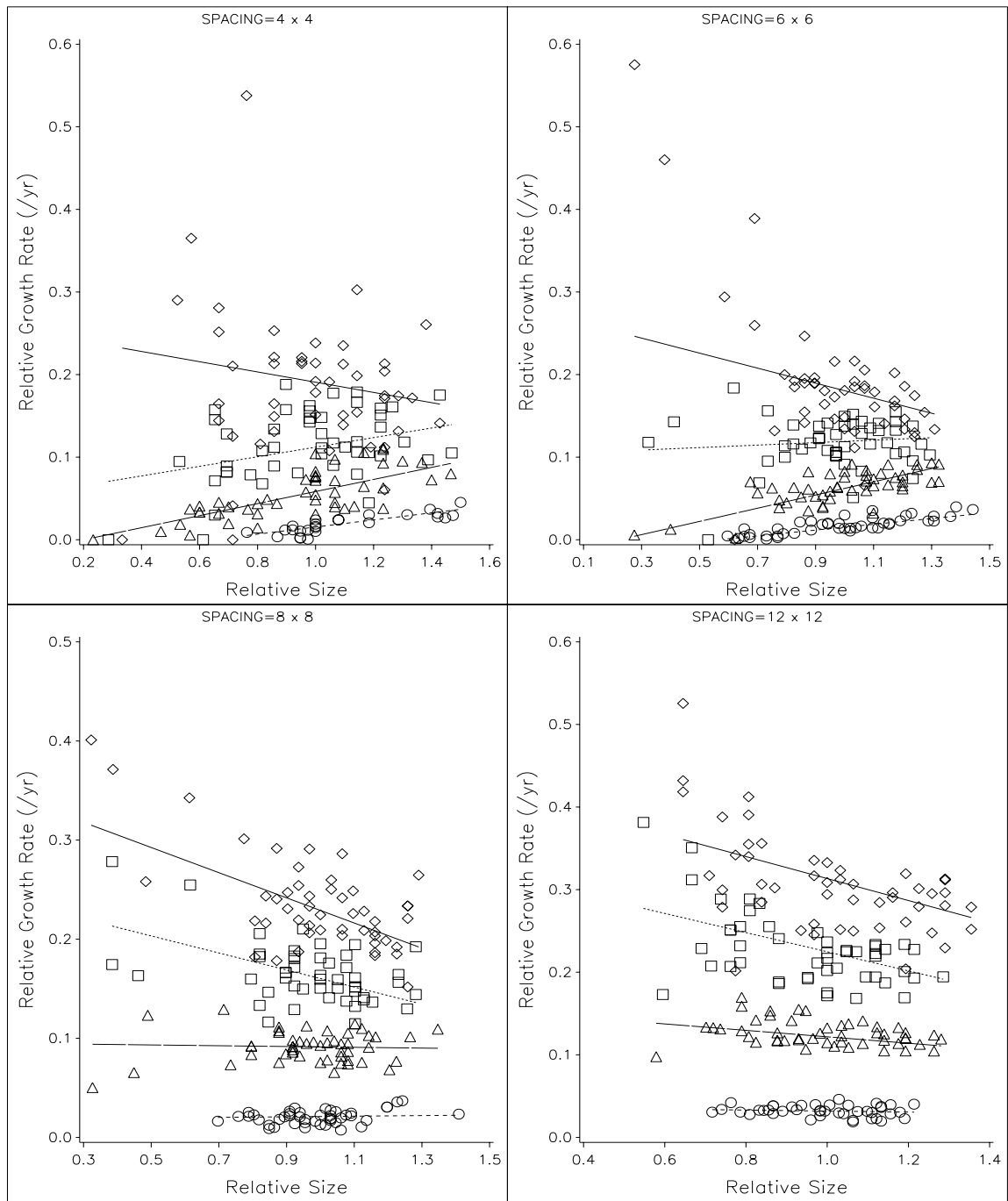


Figure A.8. Individual tree relative growth rates by relative size and age (location 3, block 2) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 14-years of age.

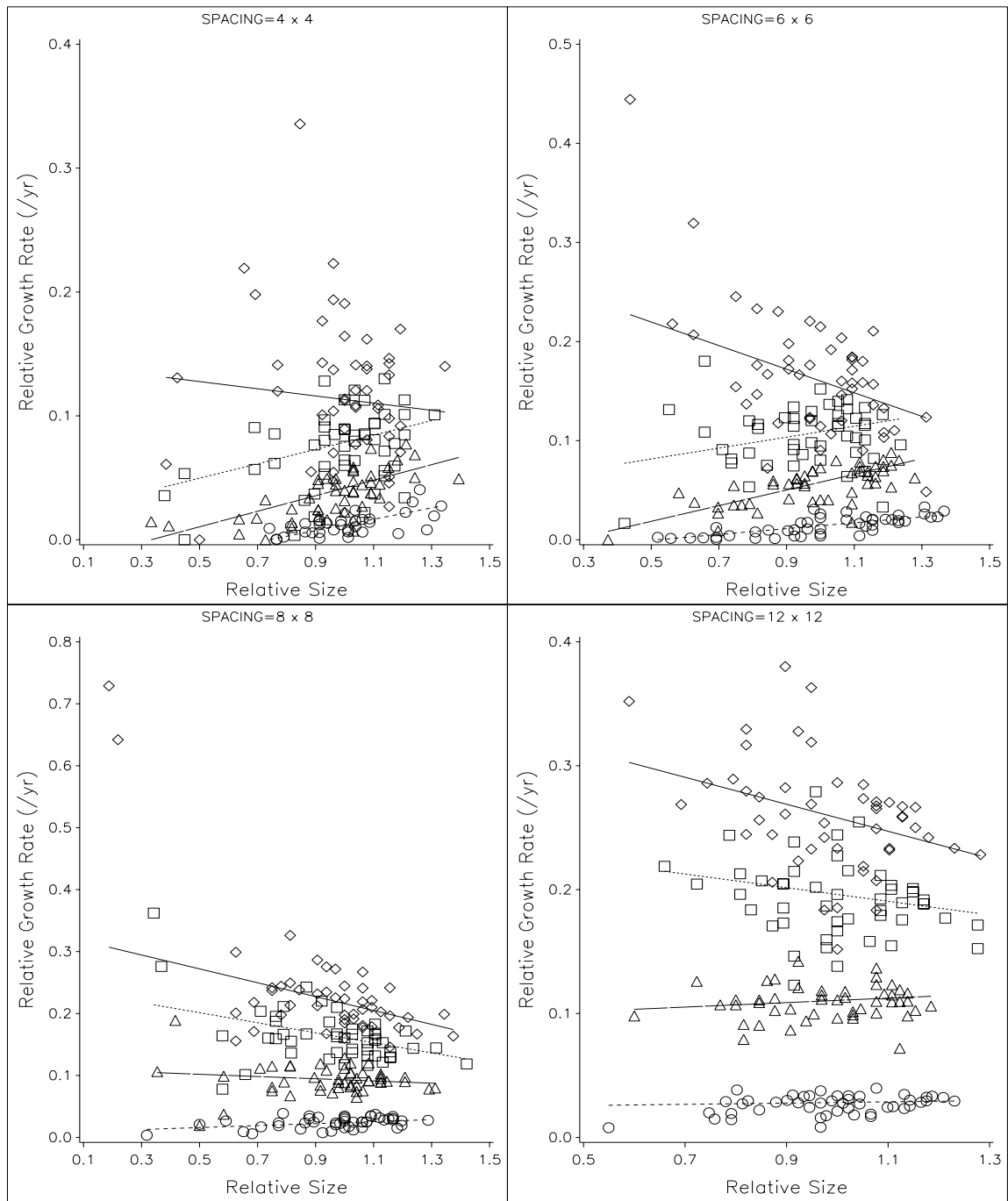


Figure A.9. Individual tree relative growth rates by relative size and age (location 3, block 3) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 14-years of age.

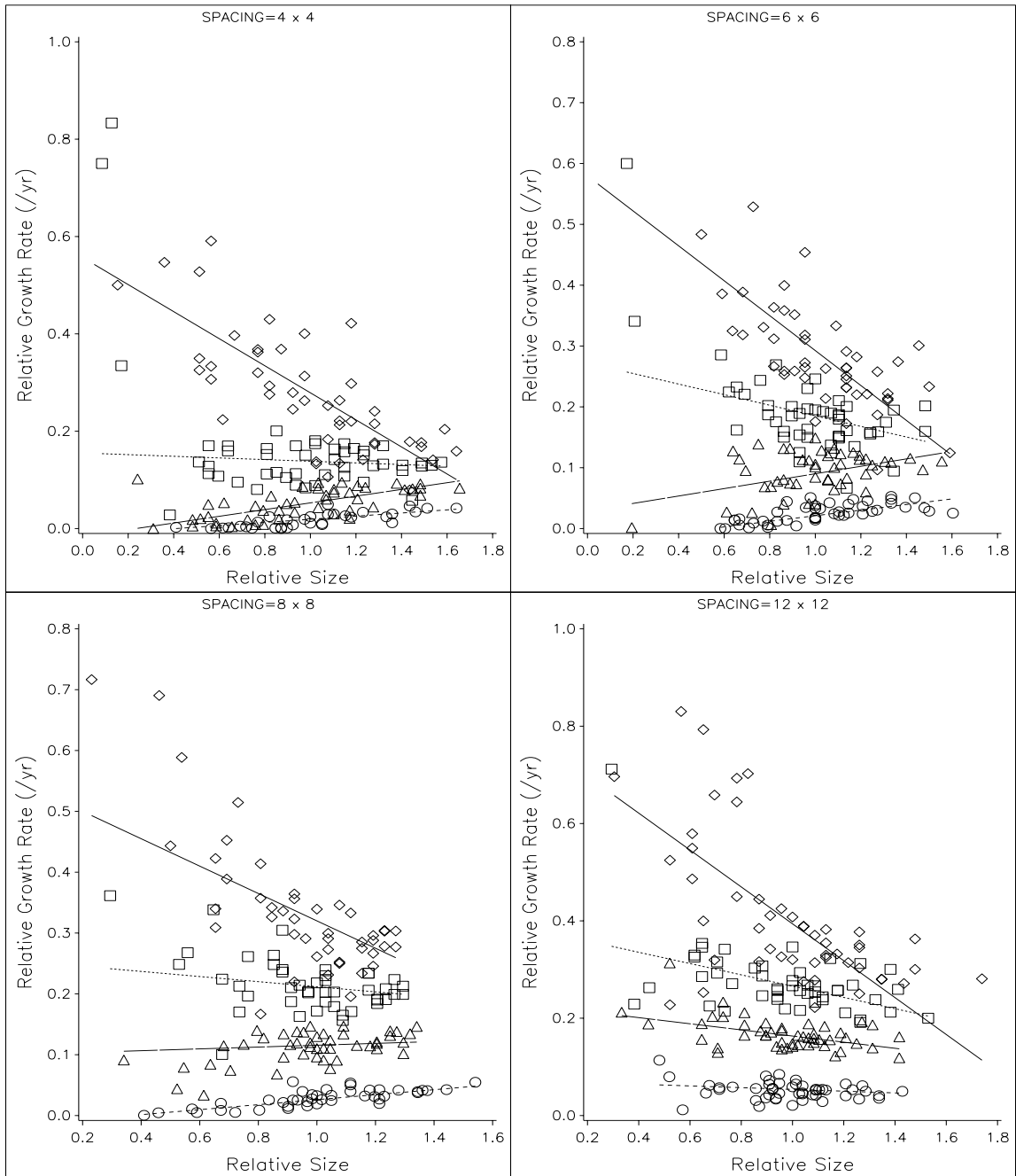


Figure A.10. Individual tree relative growth rates by relative size and age (location 4, block 1) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 13-years of age. (Note: Two trees with high relative growth rates on the 4 x 4 and 1 tree on the 8 x 8 spacing are not shown).

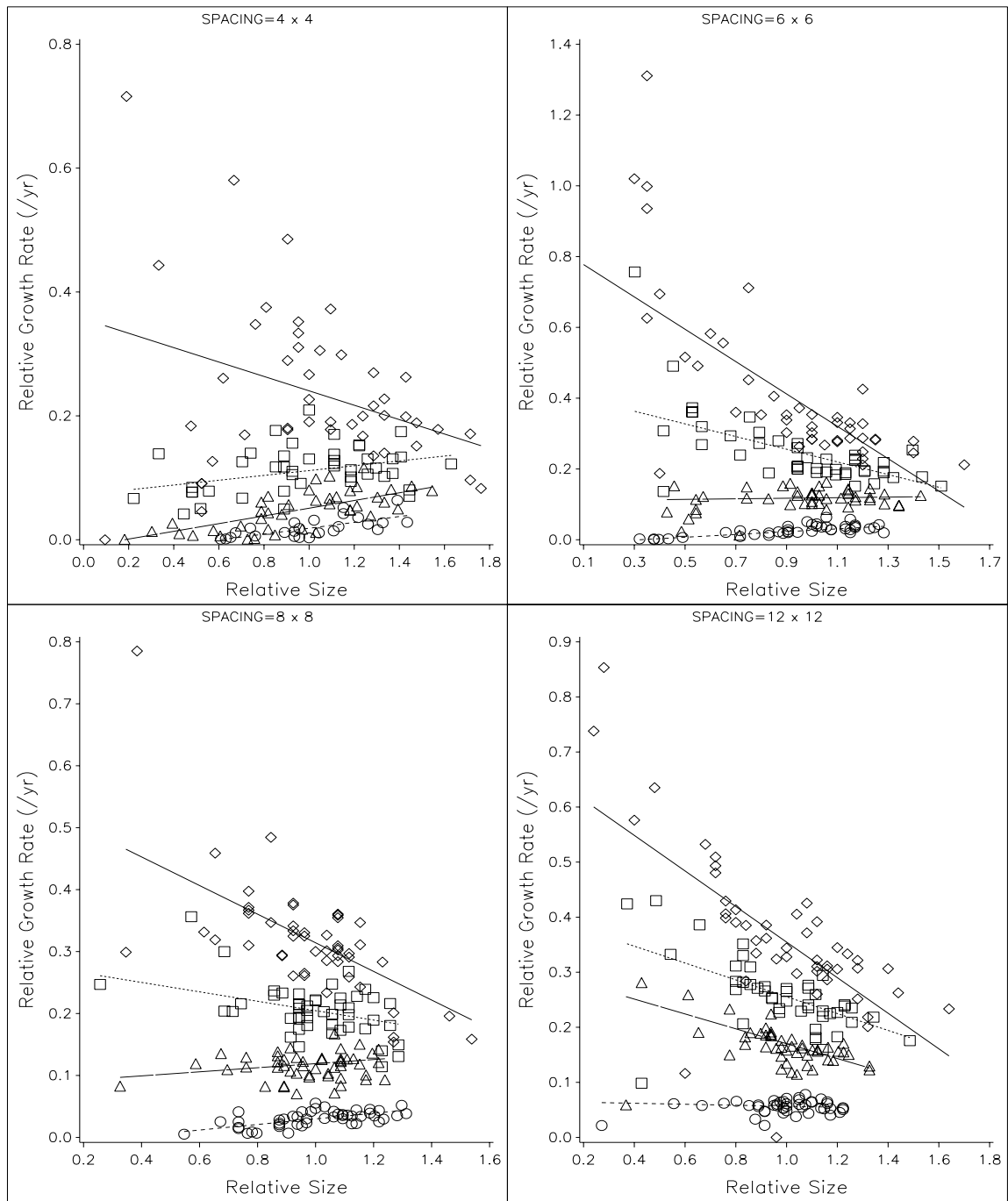


Figure A.11. Individual tree relative growth rates by relative size and age (location 4, block 2) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 13-years of age. (Note: One tree with $rgr=0$ at age 5 was not used to fit the line).

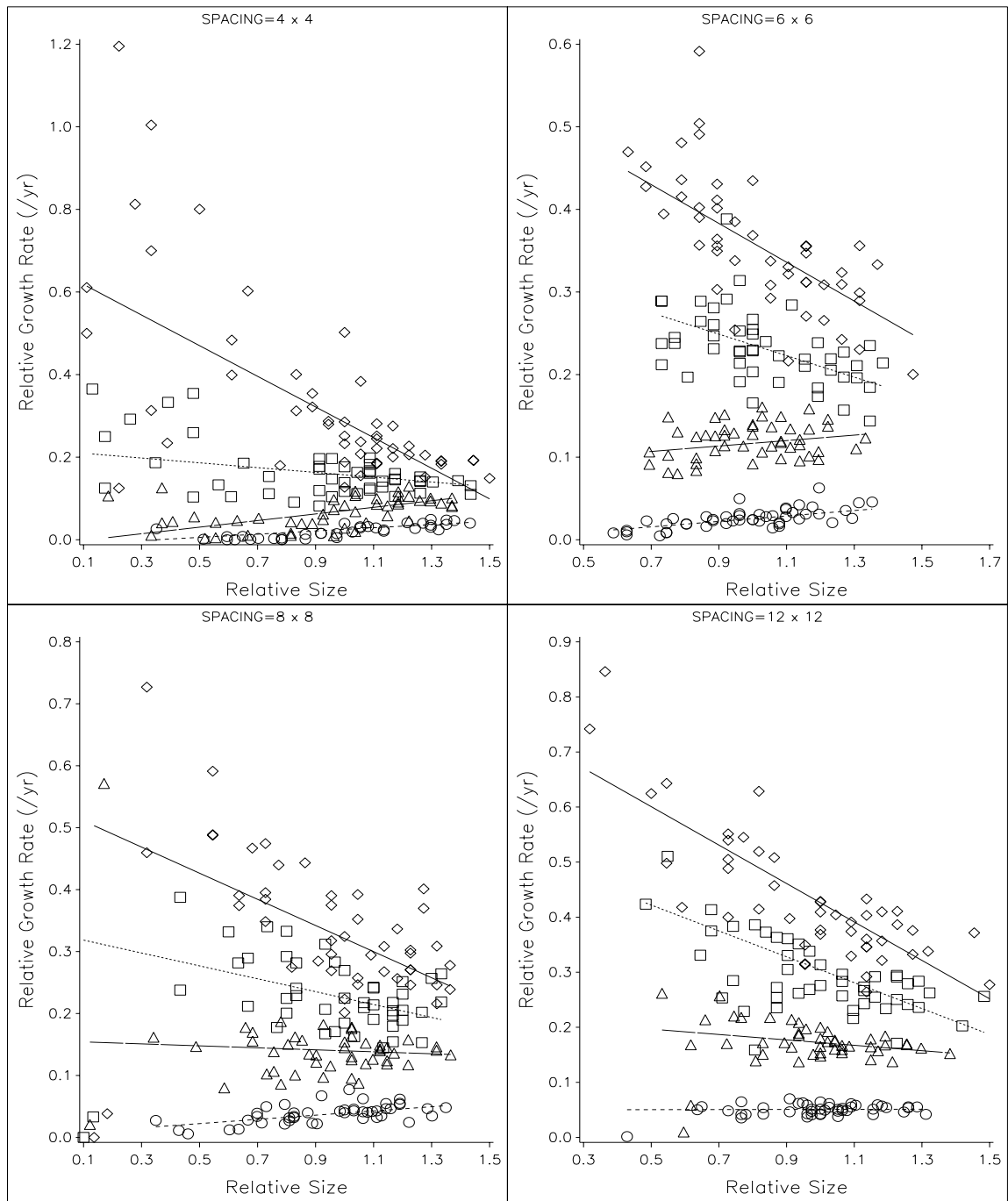


Figure A.12. Individual tree relative growth rates by relative size and age (location 4, block 3) of the Coop spacing study. The line summarizes the linear trend. Diamonds denote 5-years, squares denote 6-years, triangles denote 8-years, and circles denote 13-years of age.

Vita

Michael E. Dyer

Michael Edward Dyer was born on March 3, 1959 in Annapolis, Maryland. He attended primary and secondary schools in Warwick, Rhode Island and Agana, Guam. A 1977 graduate of Toll Gate High School in Rhode Island, his undergraduate studies began at Rhode Island Junior College and concluded in 1983 at the University of Georgia with a Bachelor of Science degree in Forestry. Continuing his studies at the University of Georgia, he obtained a Master of Science degree in Forestry majoring in Forest Biometrics under Dr. Robert L. Bailey. In the fall of 1985 he enrolled in a doctoral program in Forest Biometrics at Virginia Polytechnic Institute and State University under Dr. Harold E. Burkhart.

In 1988, he was hired as a research biometrician at Westvaco Corporation's Forest Science Laboratory in Summerville, South Carolina and is presently the Biometry Project Leader. He is a member of the American Statistical Association, the Biometric Society, the Society of American Foresters, Gamma Sigma Delta, Xi Sigma Pi, and Sigma Xi where he is a past president of the Charleston Chapter.