THE GEOGRAPHY OF INTERCOLLEGIATE LACROSSE IN THE UNITED STATES: 1986

By

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Bachelor of Science

Cornell University

Ithaca, New York

1982

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
December, 1986

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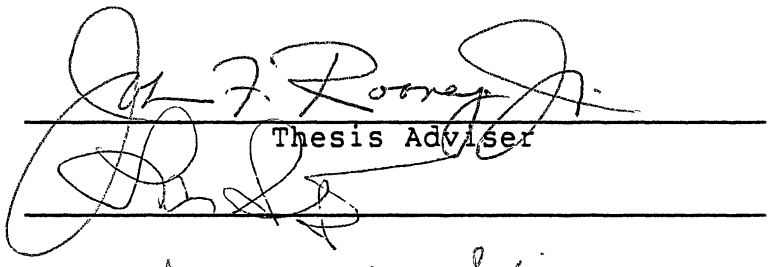
Thesis Approved:



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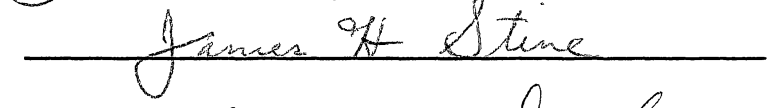
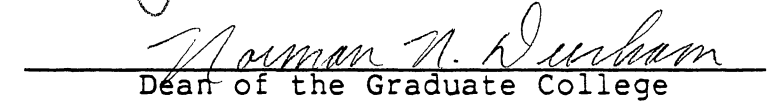




Dean of the Graduate College

PREFACE

My graduate studies at Oklahoma State University were successfully inspired by Dr. John Rooney. I am indebted to his service and the financial support of the North American Cultural Survey. I would like to thank Dr. James Stine and Dr. Louis Seig for their invaluable comments on my thesis. A special thanks goes to Dr. Stephen Tweedie for his belief in my ability to successfully complete the masters program in geography.

I would like to thank Robert Nichols for introducing me to the sport of lacrosse. To my parents, Roy and Margaret Luce, I want to express my appreciation for their emotional and financial support throughout my academic career. Above all, I want to thank my wife to be, Sheila Reinhart, for lending her love and support during a time of need.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Figure Page

CHAPTER I

INTRODUCTION

Native American Indians played an antiquated form of stick ball on the North American continent centuries before Johns Hopkins University became synonomous with lacrosse. The birth of lacrosse is believed to have been in the Saint Lawrence river valley (Weyland, 1965). Originated by members of the eastern Algonquian Indian tribes, the fast paced field sport of lacrosse diffused throughout southern Canada and most of the United States.

The historical aspect of lacrosse has been documented by Weyand, and Roberts. Without a geographical dimension the study of sport is incomplete (Bale, 1982). This geographical analysis of lacrosse will establish where lacrosse is played in 1986 at the collegiate level, where the players are being produced at the secondary school level, their migration patterns, and the locations of the highest quality lacrosse in the United States.

Sports geography question that will be answered include:

Where is the sport of lacrosse emphasized in the United States.

Where are the specific locations of the secondary

schools, towns, counties, states, and regions which emphasize lacrosse.

Where do secondary school players migrate to play collegiate lacrosse.

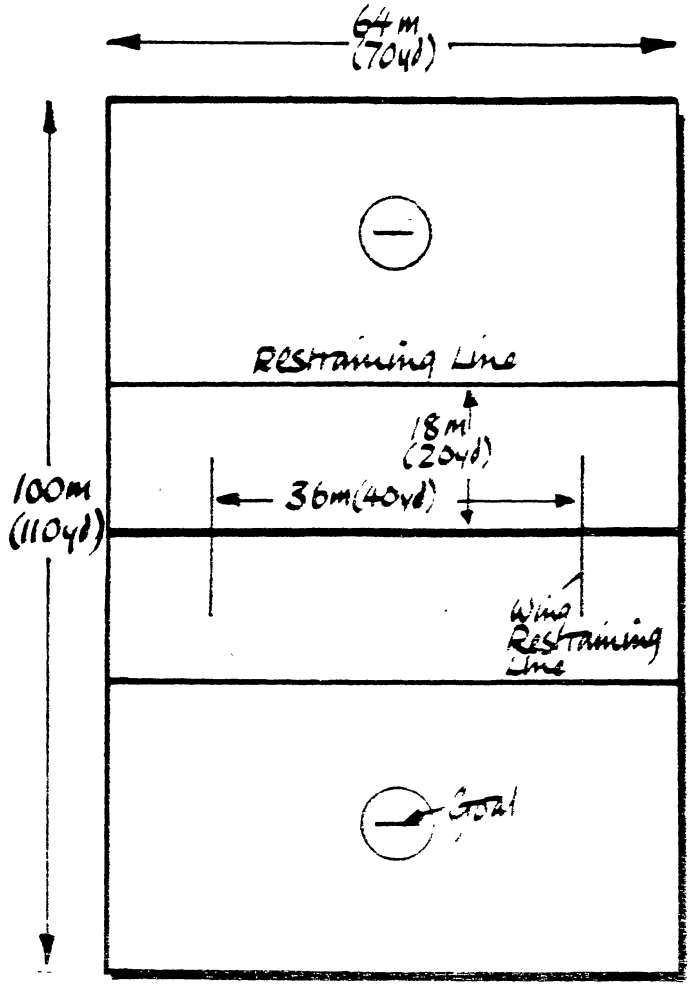
Where is the participation in lacrosse growing, decreasing, or remaining constant at the secondary school and, or collegiate level.

Where will lacrosse participation most likely increase, decrease, or remain constant, and at what rate in the future.

This thesis will focus on the geography of men's lacrosse in the United States at the collegiate level. A geographical study of lacrosse done in 1975 by G.W. Harper will be compared to the current study. The growth of lacrosse playing opportunities, participants, and the geographical areas where lacrosse emphasis has changed will be established.

Lacrosse is a field sport. Originally, lacrosse was exclusively an outdoor sport played on natural grass. Today lacrosse is played on either natural grass or artificial turf. The sport may be played outdoors or indoors. The field is 110 yards long by 70 yards wide (Figure 1).

The object of the sport is to score more goals than your opponent. The game is played with two teams having



Source: Cuddon, J.A. The International Dictionary of Sports And Games, New York: Schocken Books, 1980.

Figure 1. Dimensions of the Lacrosse Field

ten players each on the field. Each team has a goalie, three defensemen, three midfielders, and three attackmen. A hard rubber ball is passed from one player to another by using a stick which has a netted pocket on one end. A point is scored when the ball is thrown into the goal. The team with the most points at the end of the game is declared the winner.

Each team's goalie protects a six foot high by six foot wide goal. The goalie has a slightly larger netted stick which he uses to prevent the ball from entering the goal.

The goalie has three defensemen that help prevent goals from being scored. Defensemen may use lacrosse sticks that are up to six feet in length.

Midfielders are full field players. They play offense and defense as the situation dictates. Midfielders pass and, or carry the ball from the defensive end of the field to the attack. Midfielders use sticks that are no shorter than three feet and will switch to a longer stick when playing defense.

The attackmen are the scorers on the team. They are positioned on the offensive end of the field. The attackmen are closely guarded by the defensemen. Attackmen are usually the best ball handlers and have the quickness to shoot the ball past the goalie and into the goal.

The sport of lacrosse is played competitively, at various levels of intensity in the United States, Canada,

England, and Australia. Club lacrosse is the only organized form of competition in Canada, England, and Australia. In recent years the United States has dominated international competition. The elaborate organization of intercollegiate sports is unique to the United States (Sage, 1970). Intercollegiate athletics have been a major contributing factor to the development of superior lacrosse talent in the United States.

Cultural, political, and technological events have had an effect on the current geography of lacrosse. As a result, the sport of lacrosse has undergone spatial contractions and expansion that have varied in duration and intensity. Today, intercollegiate lacrosse is primarily emphasized on the east coast of the United States. Apart from intercollegiate competition, secondary school, and club lacrosse opportunities are available in a greater number of areas across the country.

From little league to club competition, over 100,000 men and women play lacrosse in the United States (USA Today, 1986). A majority of the lacrosse players in the nation are from the east coast, particularly Baltimore, Maryland, and Long Island, New York.

After the adoption of the Native American game by white men in southern Canada, and then New York, the sport diffused into the midwest, west, and south. The most significant diffusion of lacrosse was south along the east coast of the United States to the city of Baltimore,

Maryland, in the late 1800's. The Baltimore area is largely responsible for the present day popularity of lacrosse.

Lacrosse was first played in Baltimore in 1878. Johns Hopkins University of Baltimore sponsored a lacrosse program by 1888 (Johns Hopkins, 1986). From this early date, Johns Hopkins, and the surrounding universities that soon developed intercollegiate lacrosse teams in the Baltimore area dominated the sport for nearly 100 years.

Lacrosse is 'the' sport in the Baltimore area (USA Today, 1986). It is generally believed in and around Baltimore, that a Baltimore child is likely to feel more comfortable with a lacrosse stick in his hand than a baseball bat (Life, 1947). For many years it was mandatory for the students at St. Paul's School for Boys in Baltimore to carry their lacrosse sticks with them wherever they went (Newsweek, 1947).

In recent years New York has surpassed Maryland in the number of players participating in intercollegiate lacrosse. The 1986 USA world lacrosse team consisted of 15 players from Long Island (Newsday, 1986). Including three players from central New York, 18 out of 23 players on the team were from New York. The remainder were from Maryland. The USA team composed of the best players in the nation indicates the current dominant role of New York state.

The grass roots development of lacrosse today begins

in the secondary schools. It has not always been this way. As of 1955, it was common for a majority of a college's team to consist of players who had not played lacrosse in high school (Life, 1955). Although an overwhelming majority are based on the east coast, there are now over 700 secondary schools in 50 states that have lacrosse teams (USA Today, 1986; National High School Athletic Assoc., 1985). Increased competition for positions on college teams has enabled colleges to select the best players from an abundant supply of secondary school lacrosse talent.

Lacrosse has traditionally been introduced to new areas by prep schools. It is the general philosophy of preparatory schools that a variety of sports be made available so that all students may have the opportunity to participate (Esty, 1974). The sport of lacrosse fortunately benefitted from this philosophy. Initially a sport in which few schools had programs, prep students participated mostly at the intramural level.

Prep schools continue to act as diffusing agents for lacrosse. The presence of lacrosse in secondary schools in states which are just begining to develop higher level programs such as California, Florida, Indiana, Colorado, New Mexico, Georgia, and Illinois can be traced back to the initial participation opportunities at prep schools (Peterson's Guides, 1974).

Prep school graduates represent approximately 40

percent of all NCAA players. Their presence, particularly on Ivy League teams, the original intercollegiate adopters of lacrosse, suggests a philosophical undercurrent associated with the sport. Stereotypically affluent, and academically orientated, the student athlete in the Ivy League understands that the pursuit of professional athletics after graduation may result in a step down in social power (Novak, 1976). This does not mean that lacrosse in the Ivy League is being compromised by academically orientated students. The level of competition is no less intense than in any other sport (Plimpton, 1975). The pure competitive attraction of the sport only adds to the excitement of those familiar with the sport.

In relation to either football, basketball, or baseball, the three major sports in the United States, lacrosse is a regionalized, and minor, amateur sport. National recognition and the corresponding financial benefits have not been attained by intercollegiate lacrosse at the same level as major sports.

National coverage of collegiate athletics via the mass media have made them a big business. The financial rewards associated with successful football and basketball programs are significant. The tradition of pure athletic competition developed over the years is being exploited by the major television networks. The National Collegiate Athletic Association (NCAA), the governing body of major

college athletics, receives 75 percent of it's operating budget from the NCAA basketball tournament alone (NCAA, 1986). ESPN, and several USA networks have televised the division I NCAA lacrosse championships, and international competition in recent years. Weekly national coverage of NCAA competition has not become a reality for lacrosse.

Universities with larger enrollments, and athletic programs, tend to seek national championships in major college sports such as football and basketball. The corresponding publicity to be gained by a successful football program may currently be the best advertising mechanism for universities which otherwise might not get recognition outside their own state. The minor sport status of intercollegiate lacrosse has left open an opportunity for smaller colleges to realistically strive for national championships in lacrosse.

Universities and colleges which developed lacrosse programs have established a strong tradition and following of their own. Johns Hopkins University, the University of Maryland, Cornell University, the United States Naval Academy, the University of North Carolina, the University of Virginia, and the United States Military Academy all have excellent lacrosse programs.

There is currently no professional lacrosse league in the United States. Club lacrosse is available in most cities in the United States mostly as a result of eastern lacrosse players relocating across the country after

graduation. At the club level, lacrosse comes the closest to being geographically ubiquitous. The level of skill varies from region to region as does the intensity of competition.

The popularity of lacrosse is increasing. Lacrosse is diffusing west and south due to prep school opportunities. The increasing economic importance of lacrosse at the collegiate level in terms of recruiting, travel, and future revenue from media coverage will influence the decisions of athletic departments concerned with developing intercollegiate lacrosse teams, or improving the quality of current programs. The assimilation of lacrosse into American society appears to have great potential. A documented geography of lacrosse can act as an important decision-making tool in the continued growth of lacrosse in the United States.

CHAPTER II

LITERATURE REVIEW

The growing role of sport in society has drawn considerable attention from many academic disciplines. The incentive to study sport geographically is not unique. The geography of sport has been studied extensively in the United States by Rooney, and internationally by Bale. Supported by few facts, controversies over the 'best' areas for particular sports are generally influenced by place-pride biases (Rooney, 1974). The geographical analysis of sport establishes who plays what where (Rooney, 1974, and Bale, 1982).

Historical and anthropological research indicates that play is a cultural universal. Sport exists in all but a few primitive cultures (Sage, 1970). Sport pervades American society in the twentieth century. The industrial revolution ushered in the modern age of sport in the United States. Rising standards of living, the growth of cities, and the extension of leisure time were prominent social forces contributing to the development and growth of sport (Betts, 1974).

The closing of the American frontier led to a new outlet for the pent-up energy of an increasingly domesticated American society. About 1851 a new 'safety

valve' of sport was created to discharge this surplus energy (Paxson, 1970). By the 1880's, sports clubs, college and professional sports, and sports fads were quickly becoming a part of the American landscape (Sage, 1970). Colleges were being established. As their geographic locations became closer, natural geographic rivalries took the form of sports contests. The first official intercollegiate competition on record was a rowing race between Harvard and Yale in 1852 (Sage, 1970).

Evidence indicates the United States' interest in sports has increased dramatically since the Industrial Revolution. In 1929 there were 17.5 million paid vacation weeks in the United States, in 1941, 30 million; in 1947, 48.5 million; and in 1961, 65 million (Boyle, 1970). The increase in leisure time provided the opportunity for society to participate and spectate in a wide variety of recreational and sporting activities.

The type of sports that are most followed by the American public are of interest. Team sports have increased in importance in relationship to individual sports (Guttmann, 1978). Individualism, a trademark of the American spirit has not transcended American sport to the extent that teamwork has. The ideals of Thoreau would tend to indicate the attraction of Americans to individual sports that are not limited by time. Major spectator sports; baseball, basketball, football, and hockey; all rely on teamwork and, except for baseball, have temporal

limitations. In a study done on the covers of Sports Illustrated, from 1955 - 1977, the proportion of covers devoted to team sports rises while that given over to individual sports drops (Guttmann, 1978).

The public preference for team sports in the United States may contribute to the rising popularity of lacrosse in the geographic areas where it is played. Lacrosse is conceptually similar to major team sports in the United States. A ball is used, goals are scored at either end of the field, and time is kept by quarters. There is fast, nonstop action which can be very physical at times.

Spatially, lacrosse utilizes the same parameters as a football field. The utilization of football stadiums during lacrosse season in the spring is an easy transition for athletic departments developing lacrosse programs.

Intercollegiate athletics are not exempt from supply and demand (Koch, 1971). The more lacrosse is played across the country (supply), the more people will want to see it played (demand). The economic incentive to use otherwise unused stadium space may prove to be a critical factor in the future diffusion of intercollegiate lacrosse.

Certain sports have become more prominent in some geographic areas and relatively insignificant in others. The geography of lacrosse will help to explain why lacrosse is emphasized where it is.

Sport emphasis regions in the United States have been

documented by Rooney (Rooney, 1974 and 1980). Addressed from a geographical perspective, participation in athletics at the professional and, or collegiate level is a function of where the athlete originates from.

Due to the work of Rooney on football, basketball, and baseball player origins, team rosters were discovered to be the best method of collecting player hometown information. Roster information is used to document where secondary school athletic talent originates.

The location of the most successful collegiate teams indicates where particular athletic programs are emphasized more than others. The consequent recruitment and migration patterns of athletes from high school to college reflects the relationship between sports emphasis regions at the high school and collegiate level.

What colleges are the most successful in a given sport may be attempted by several methods. The Associated Press and the United Press International rank the top twenty collegiate football teams weekly during the football season. The rankings, combined over many years may be used to document the top teams over time (Rooney, 1980). Television coverage may supplement the Associated Press polls (Rooney, 1980). The number of All Americans selected yearly may be used to document the top collegiate teams.

Collegiate basketball and baseball have a national championship each year which establishes the best teams in

the nation. Records from the National Collegiate Athletic Association are excellent sources of information (Rooney, 1974 and 1980).

Harper evaluated the geography of intercollegiate lacrosse in 1975. Harper studied under the auspices of Rooney. The methodology utilized by Harper was largely derived from Rooney (Harper, 1975). Lacrosse emphasis regions were documented with the use of National Collegiate Athletic Association division I, II, and III team rosters.

The top lacrosse team in the country is decided by a national tournament. The total number of championships per college since the late 1800's per state indicated where the highest quality of intercollegiate lacrosse is played (Harper, 1975).

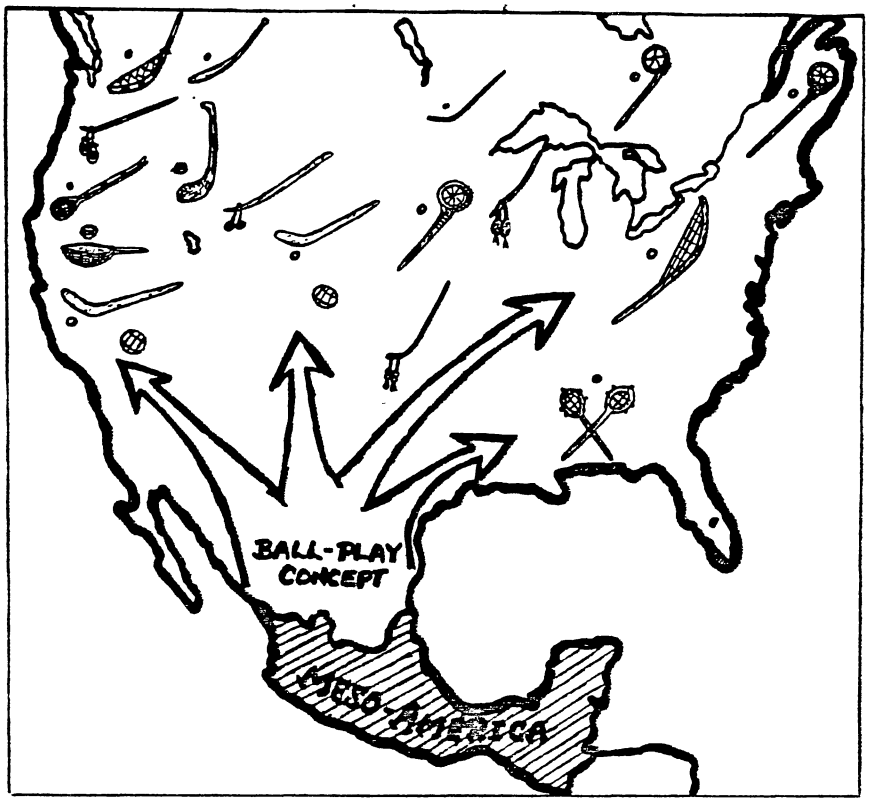
The migration of lacrosse players from secondary school to college had not yet been documented. In addition no attempts had been made to estimate where lacrosse may be played next at the collegiate level. Documentation of the number of collegiate playing opportunities in 1975 and total production of lacrosse players established a data base for consequent geographical studies of lacrosse emphasis regions in the United States.

CHAPTER III

THE HISTORICAL GEOGRAPHY OF LACROSSE

The role of lacrosse in the United States is directly related to the original inhabitants of North America (Eaglesmith, 1976). The original birth of ball games is believed to have been in Central America. Ball games diffused north, fanning out across North America (Figure 2). Different variations of ball play eventually developed. Several variations of stick and ball games, some similar to modern lacrosse developed. Stick games developed in areas where the natural vegetation permitted the use of wooden sticks. Stick games did not develop in the southwest region of the United States. Popular literature cites the area which is now New York as the birthplace of lacrosse (Sports Illustrated, 1983).

Lacrosse has been an integral part of various Native American Indian cultures (Eaglesmith, 1976). Lacrosse competitions at times involved a thousand warriors. The size of the playing field varied from a few hundred yards to several miles across all types of landscapes (Weyland, 1965). Theories vary on the role of lacrosse in early Native American culture. One theory suggests that successful play at lacrosse was considered a passage into manhood (Weyland, 1965). Ball play was one method of



Source: Eaglesmith, J. "The Native American Ball Games", in Hart, M. Sport in the Sociocultural Process, 1976

Figure 2. Geographic variation of Early Sticks and Balls

selecting strong and agile warriors.

Native Americans have denied the theories of white scholars. The Mohawk Indian Traveling College believes that the "natives played lacrosse for fun, physical fitness and spiritual development" (New York Times, 1986).

Lacrosse games were held during harvesting festivals and political councils when the tribes gathered (Eaglesmith, 1976). In particular, the ball game of lacrosse most similar to the type of lacrosse played today was an integral part of the northeastern tribes' culture, namely, the Iroquois Indians of New York (Mooney, 1890).

A two stick form of lacrosse was originally played by the Cherokee in the southeast. A smaller type stick game was played in the north central region. On the west coast, and on the extreme east coast (Maine) a larger netted stick game developed. Stick sizes, shapes, and the materials they were made of varied across southern Canada and the United States.

In 1636 a Jesuit missionary Jean de Brebeuf witnessed a game which he called "crosse" played near the southern end of Georgian Bay, Ontario, Canada. The name was derived from a religious association. The curved sticks reminded the missionary of the curved crosier of a bishop. Hence, the modern name of lacrosse was derived.

In 1667, Nicholas Perrot a Frenchman witnessed a lacrosse game near Sault Saint Marie in which two thousand warriors participated. Pierre de Charlevoix, a French

missionary stated he watched a game near the southern end of Lake Michigan in 1721.

At the conclusion of the American Revolution, the Iroquois Indians migrated north across the border into southern Canada to escape possible reprisals by Americans for their actions during the war. By the 1790's, during peaceful times, a more civilized game was developed by the Indians. The sport had begun to transform into the game it is today.

The following is a list of firsts for modern lacrosse:

> The first game recorded in which white men played was held in 1844 between the Olympic Athletic Club of Montreal and the Caughnawaga Indians of Quebec.
>
> The first lacrosse club composed of white men was formed on Dec. 4, 1867, called the Mohawk Lacrosse Club of Troy, New York.
>
> In 1869 the Knickerbocker Lacrosse Club of New York City was formed. The club was formed entirely of native Canadians.
>
> The first Intercollegiate lacrosse game was held November 22, 1877, between New York University and Manhattan College at Central Park.

At the upper class Westchester Polo Club in Newport, Rhode Island, in 1878 a lacrosse tournament was held. The Ravenswood Club of Long Island, New York, and the Union Athletic Club of Boston played each other. Each team had a number of Canadians on its squad. The game was well-played and attracted the attention of the upper-class crowd. Members of the Baltimore Athletic Club were there at the same time for a track and field meet. They liked the sport and brought equipment back to Baltimore with them.

Lacrosse exhibitions by Baltimore players introduced the sport to Washington, D.C., and Philadelphia, Pennsylvania, in 1879. By 1880 lacrosse was being played in New York, Boston, Philadelphia, Baltimore, and Washington, D.C. Diffusion across southern Canada and the northern United States was accomplished by seasoned Canadian players. In California, on June 15, 1878, the San Francisco Club won the city lacrosse championship from the Maple Leaf Club of San Francisco.

By the spring of 1881, Princeton and Columbia had organized teams. In 1883 over one hundred organizations were playing lacrosse. Many of them were in the Midwest. St. Paul and Minneapolis joined the Western Canada Lacrosse Association in 1900. They played against Chicago, Calumet, Detroit, Duluth, Winnipeg, the Algonquian Club of Port Arthur (Thunder Bay), Ontario, and the Canadian Soo of Sault Sainte Marie, Ontario.

Johns Hopkins University of Baltimore first played the game after some of the students learned it from a Baltimore club team. On May 11, 1883 Johns Hopkins University played its first game against the Druid Lacrosse Club of Baltimore.

Without any rules on player eligibility, early players acted as diffusion agents. Originally, players moved from team to team and introduced the sport of lacrosse to many colleges. The Reverend Joseph Leighton, a native Canadian, established lacrosse programs at Cornell in 1892, and Hobart in 1898. Leighton played for Cornell, Harvard, the Crescent Lacrosse Club of Brooklyn, and Hobart, respectively.

Attempts were made in these early stages to establish lacrosse in the secondary schools. Though largely unsuccessful, a few of the private schools which could afford equipment eventually began to compete against each other. Club teams were the main reason lacrosse survived in the early days.

The Crescent Lacrosse Club of New York was a dominating force in lacrosse for over forty years. Until the Canadians switched to box lacrosse in the early 1930's, the best competition was between top Canadian club teams, and top United States club teams.

Intercollegiate lacrosse took hold on the east coast in the early 1900's. Except for the interruptions of the two World Wars, lacrosse continued to grow in

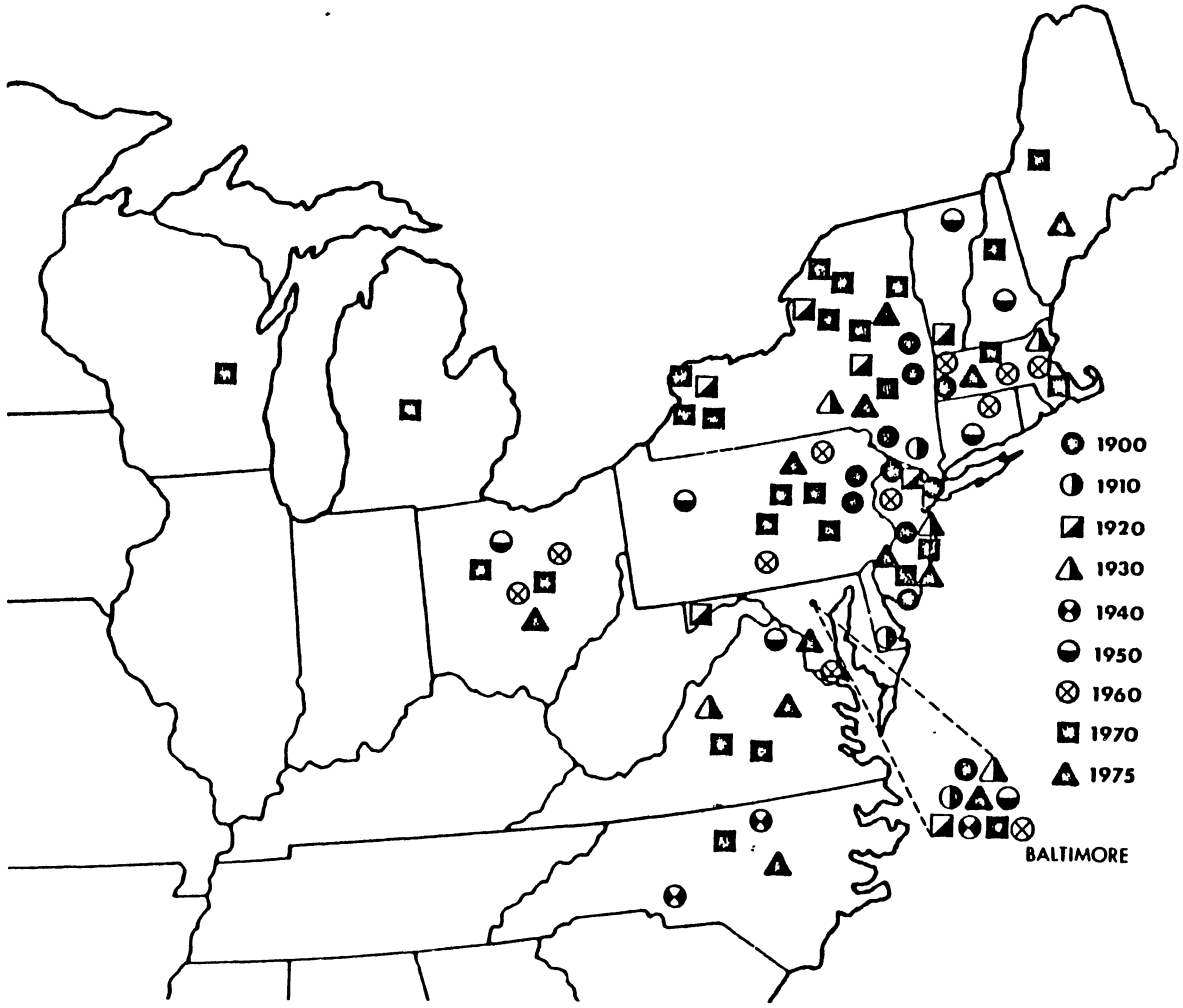
participation, and popularity (Figure 3). Early east coast colleges to play lacrosse after the initial adopters of the sport included Lehigh, the University of Pennsylvania, and Swarthmore. These three Pennsylvania schools began playing by 1902. Hobart, and Army began in 1907. Syracuse started playing lacrosse in 1902 (Figure 4).

The diffusion of intercollegiate lacrosse south did not materialize into many new teams until the 1920's. Lacrosse was being played by the University of Maryland in 1924. Georgia Tech, and the University of Georgia organized teams by 1925 and 1926. The University of Virginia and Randolph-Macon College began play by 1926. Duke University and the University of North Carolina played each other in the first intercollegiate lacrosse game in the state of North Carolina in 1938.

Intercollegiate lacrosse diffused west in the 1940's. The University of Michigan, Kenyon College, and Illinois State formed teams in 1940. In 1941 Kenyon played Oberlin (Ohio) in the first intercollegiate lacrosse game ever played west of the Alleghenies.

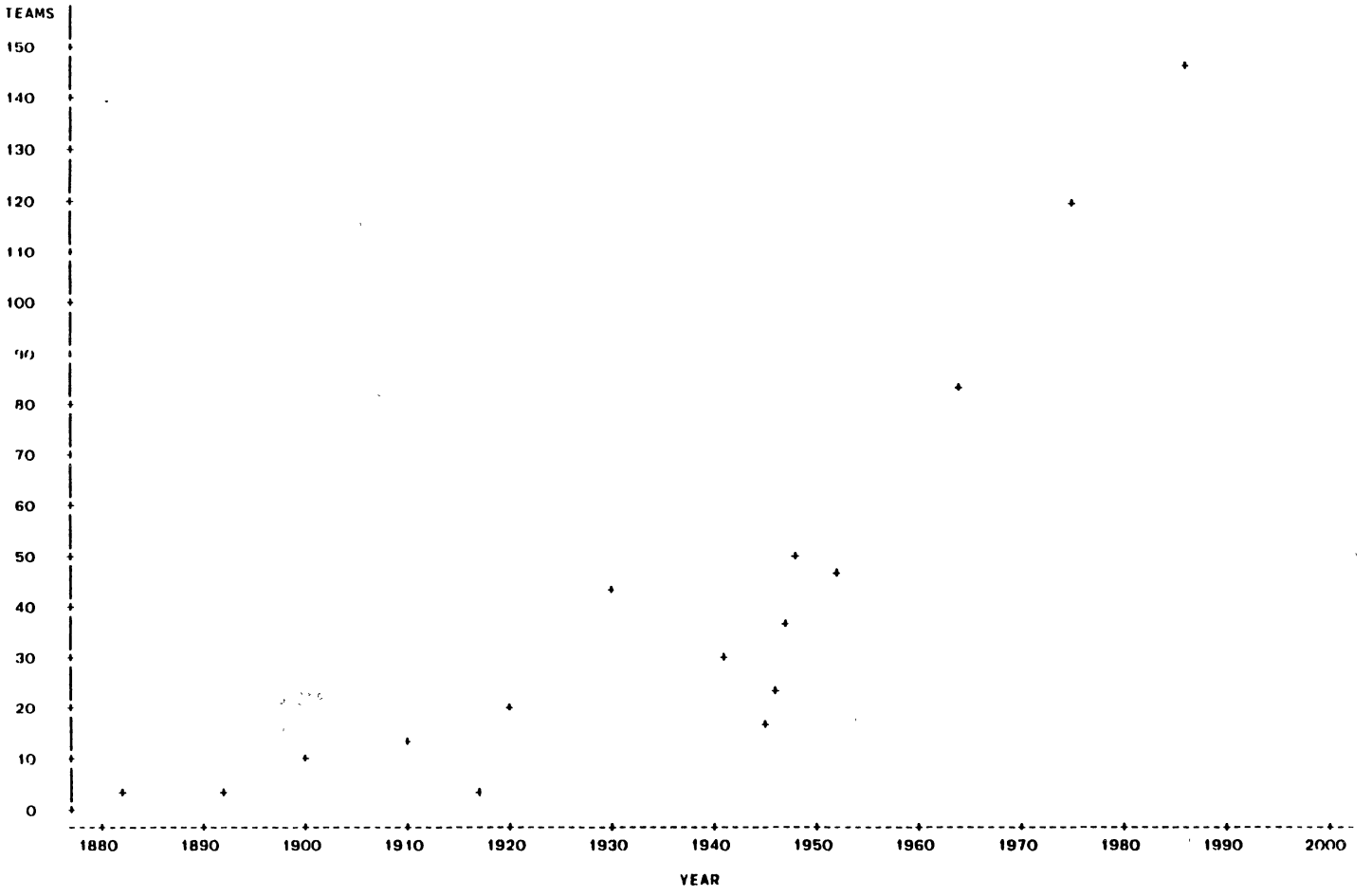
Lacrosse was introduced at the Air Force Academy of Colorado Springs by Tony Cillo, a former Rutgers player in 1956. In 1959 the University of Colorado organized a team. The University of Arizona began play in 1960.

In 1963 the Air Force Academy won the first championship of the newly formed Western College Lacrosse



Source: Jerry Harper, Dept. of Geog. OSU 1976

Figure 3. The Diffusion of Intercollegiate Lacrosse



Source: Weyand The Lacrosse Story, 1965. 1986 NCAA Lacrosse Rosters.

Figure 4. The Growth of Intercollegiate Lacrosse: 1880-1986

Association. The association was composed of the Air Force Academy, the University of Arizona, Claremont College (CA), the University of Colorado, Stanford University, and the University of Utah. In 1964 Colorado State University and Colorado College joined the association.

Increased participation in lacrosse has been in part the result of social and technological changes. The development of lacrosse programs at non-Ivy League colleges introduced the sport to a wider variety of students. The public school systems in the areas lacrosse is played have made lacrosse available to all students. Increasing the number of playing opportunities to a wider variety of students has increased the chances of lacrosse becoming a national sport in the United States.

Technological advancements on lacrosse stick design were officially accepted in collegiate lacrosse in the early 1970's. Technological advancements have changed lacrosse dramatically. A lighter alluminum shaft replaced the traditional heavier wooden stick. A plastic head replaced the wooden head. Nylon strings were allowed which could form a ball pocket more quickly. Lacrosse became easier to play. Mass produced sticks improved the quality of play. The technique involved in the throwing and catching of a lacrosse ball no longer varied significantly from one stick to another. The older wooden sticks were immediately replaced with the new sticks. Awkward equipment was no longer a barrier to mastering the sport.

Beginners quickly gained confidence in their playing ability, and were not as easily discouraged.

There are presently 145 intercollegiate teams in 20 states and the District of Columbia that are members of the National Collegiate Athletic Association (NCAA). There are countless other collegiate teams across the country that are not members of the NCAA. Lacrosse is played throughout the country, but as this study will show, lacrosse is still overwhelmingly concentrated in the northeast.

CHAPTER IV

METHODOLOGY

The study of sport may be conducted geographically by region or by topic, ie, sport. To identify, and study lacrosse regions specifically, a topical (sport) approach is utilized.

The rosters of National Collegiate Athletic Association 1985-86 division I, II, and III lacrosse teams will constitute the data base. Home towns of each player are available on team rosters. As a result, the origins of lacrosse players may be geographically determined and mapped.

The decision to use team rosters over fan support regions or athletic scholarship information is derived from the feasibillity of collecting such data. Economic data may be collected on gate receipts at lacrosse events. Error may be introduced in data collection if lacrosse contests may be viewed free of charge. Furthermore, information on gate receipts is not contained in lacrosse bulletins, programs, or yearbooks. Error may be introduced in data collection which ultimately may distort where lacrosse emphasis may exist.

Information on athletic scholarships is not readily available for public consumption. The NCAA, responsible

for monitoring the integrity of amateurism in collegiate athletics, has caused athletic departments to be quite sensitive about releasing financial information. Despite the minor sport status, lacrosse has undergone transformations in recent years which indicate the growing financial importance of lacrosse to some universities. The recruitment of top quality high school lacrosse players has become increasingly competitive as the public demand for lacrosse continues to grow.

The sensitivity of collecting financial information to establish lacrosse regions is compounded by the inherent academic relationship associated with lacrosse. Athletic scholarships are not granted in the Ivy League. To analyze lacrosse regions geographically by athletic scholarships given to lacrosse players, where in fact academics may play a more important role in a lacrosse player's decision to attend a particular college, undoubtedly would distort the apparent lacrosse regions from the actual ones.

The use of team rosters creates the least potential for error in data collection. One type of error that may be introduced is derived from private preparatory schools that play lacrosse. Occasionally a student's hometown may not be the same geographical location as the place where he learned to play the game. In some cases, students may attend a private academy in another state. This may become obvious when students name hometowns in states which are

not known for their prowess in the sport of lacrosse.

One benefit to the mapping of player production data using player hometowns as the data base, regardless of where they learned lacrosse, will be to indicate diffusing agents for the sport of lacrosse.

Total player production per state was collected from the rosters of 145 NCAA Division I, II, and III lacrosse teams. Those states which have a higher proportion of players are geographically referenced and mapped by county. Mapping at the county level achieves a higher level of accuracy. Total player production is compared to similar data collected in 1974-75 (Harper, 1975), thus indicating total production growth. Comparisons of per capita values serves to indicate the actual growth of the sport.

Census information on total population of the United States is used to establish a per capita average in player production. Total player production (NCAA) for the nation divided by total population will equal the national average.

State and county population statistics in conjunction with the total United States population can be used to create comparative per capita values. The national per capita average in player production is the basis for the development of location quotients. State and county populations divided by the number of players produced from each state and county will create per capita values at a

more detailed level. Dividing the state and county per capita values into the national per capita value will create state and county location quotients respectively. Location quotients are based on an established national average of 1.00. Location quotients at the state and county level identify geographical areas that produce players at a rate higher or lower than the national average. Those states and counties which have location quotients less than 1.00 are producing lacrosse players at a rate below the national average. Those states and counties which have location quotients greater than 1.00 are producing players at a rate higher than the national average.

Distortion may develop in the use of per capita/location quotient values if the population size of a particular geographical area is relatively small in number in comparison to other geographical areas. For instance, county populations in the state of Virginia are small due to the unique way in which the state is subdivided. In general the comparisons of location quotients are accurate, and indicate the actual emphasis placed on a given sport. To eliminate potential anomalies in the results by using per capita values, a county must produce at least ten players if it is to be considered as an above average producer of lacrosse talent.

Participation, or opportunity to play lacrosse may be measured by at least two sources. The NCAA listing of

1985-86 participating colleges is used to map playing opportunity per state. The United States Intercollegiate Lacrosse Association (USILA) membership list contains NCAA member teams, and collegiate club teams. The USILA includes 191 collegiate teams. Potential expansion of the NCAA may be suggested from the number of teams currently members of the USILA. Total and per capita participation maps at the state level will be made for the NCAA. A total participation map will be made for the USILA. Participation of NCAA division I, II, and III schools will be made individually and combined to indicate the geographical locations where playing opportunity for "big time" versus small school collegiate lacrosse exists.

To establish where the highest quality lacrosse is being played, geographical information on national lacrosse championships will be referenced and mapped at the state level. A map will be produced for total collegiate championships.

Migration maps serve to demonstrate the geographical nature of lacrosse player recruitment. Migration maps are produced by totaling the geographical locations of each participating lacrosse team's players by state. Migration maps for the top ten lacrosse schools in the nation indicate where the high quality, high school lacrosse players are coming from. Information on player migrations document the recruiting patterns of the quality lacrosse programs.

CHAPTER V

DATA ANALYSIS

Introduction

Team rosters were received from 128 of the 145 NCAA men's lacrosse colleges in the United States.

DIV. I	-	94%	46 of 49 teams
DIV. II	-	74%	14 of 19 "
DIV. III	-	88%	68 of 77 "
Total		88%	128 of 145 teams

Team rosters from the states of California, Illinois, and Wisconsin (states which only have one NCAA team) were not received. Eight colleges from New York, two from Massachusetts, one each from Colorado, Ohio, Vermont, and Virginia either did not respond to the survey, or their rosters were not complete with player hometowns. Table I lists the teams from which player origin information was not available.

The balance of the NCAA lacrosse team rosters were included in the data analysis.

Comparisons of 1986 player origin data to similar data collected in 1975 (Harper, 1975), must be made with

TABLE I

NCAA COLLEGES NOT INCLUDED IN THE 1986 PLAYER PRODUCTION DATA

Division I	
Santa Clara University	CA
Siena College	NY
College Of William & Mary	VA
Division II	
Colorado School Of Mines	CO
Le Moyne College	NY
Pace University	NY
Queens College	NY
Ashland College	OH

(Continued)

TABLE I

Division III	
Lake Forest College	IL
Curry College	MA
Mass. Maritime Academy	MA
Nazareth College	NY
City College Of New York	NY
Polytechnic Inst. Of NY	NY
St. Lawrence University	NY
Castleton State College	VT
Lawrence University	WI

caution. The percent of the NCAA lacrosse colleges sampled in 1975 was not recorded. The names of the specific colleges not included in the 1975 study were not listed. From the 1975 study it is unclear if a representative sample from each state was obtained.

Certain assumptions may be made to ascertain the approximate number of colleges sampled in 1975. The 1986 roster data consists of 3936 NCAA lacrosse players. With 128 colleges responding, the average number of players per team can be estimated as follows:

3936 players / 128 teams = 30.8 players per team

An extrapolation of 30.8 players per team for 145 colleges equals 4459 players active during the 1986 NCAA lacrosse season.

In 1975, 121 colleges were playing NCAA lacrosse (Harper, 1975). Assuming that in 1975, as in 1986, that 30.8 players per team was the average, it may be estimated that 3727 lacrosse players were participating at the NCAA level. The increase in player participation from 1975 to 1986 measured by this technique is 19.6 percent. The increase in playing opportunity (the number of NCAA lacrosse programs) from 1975 to 1986 is 19.6 percent.

The percent increase in player participation, assuming that 30.8 players per team is the average, is dependent on the number of colleges which have NCAA lacrosse programs. In 1975, data were collected on 2134

players. A 57 percent response rate results if the 1986 average of 30.8 players per team is used. A 57 percent response rate would appear too low for an acurate geographical analysis. Therefore, it is reasonable to assume that a higher response rate was recorded, and the number of players per team was lower in 1975.

An 88 percent sample (the same as 1986) in 1975 would involve 106 college team rosters, and 2134 players for an average of 20 players per team. An assumption will be made that 20 players per team is too low. The current analysis shall assume that the response rate of 1975 was between 57-88 percent. Consequently, comparisons which are made between 1975 and 1986 data may have an inherent error of no more than 30 percent. Relative rankings of comparative data may therefore be of greater significance than absolute differences.

Secondary School Playing Opportunity

Quality intercollegiate lacrosse programs continue to be successful due to the supply of secondary school lacrosse talent being generated. The most competitive NCAA lacrosse programs exist today near centers of secondary school playing opportunities. Before geographically analyzing the distribution of intercollegiate lacrosse programs, a survey of where the secondary school lacrosse programs exist is needed to fully understand why intercollegiate lacrosse programs exist where they do.

According to the National Federation Of State High School Associations, public school lacrosse programs have increased approximately 59 percent since 1974 (Table II). The total number of players have increased 230 percent. The number of players per program has increased from 27 to 56 players.

Private schools have lacrosse programs in more diverse geographical locations than public schools (Table III). At least 24 states and the District of Columbia account for 227 prep school programs (Peterson's Guide, 1985).

There are at least 518 secondary schools across the country that have lacrosse programs (Figure 5). Prep schools consist of 44 percent of all programs. There are more prep school lacrosse programs in 20 of the 24 states and the District of Columbia having secondary school lacrosse programs. If New York state were not included in the summary of secondary school programs prep schools would account for 60 percent of all programs. New York, Maryland, New Jersey, and Michigan are the only states having more public school lacrosse programs than private school programs.

The number of participating colleges in the NCAA has increased by 20 percent since 1975. Considering only the increase in public school opportunities (59 percent), and players (230 percent), the NCAA has not kept pace with the growth of lacrosse at the secondary school level. It seems

TABLE II

STATE PUBLIC HIGH SCHOOL LACROSSE OPPORTUNITY: 1974-1985

-	Public Schools		%	Participants		%
State	1974	1985	Change	1974	1985	Change
New York	127	161	+27	2500	9852	+294
Maryland	30	66	+120	900	2953	+228
Massachusetts	-	28	-	871	1658	+90
New Jersey	23	24	+4	575	1517	+164
Michigan	-	7	-	-	208	-
Virginia	-	3	-	-	75	-
Delaware	-	1	-	-	40	-
New Hampshire	1	1	0	40	22	-45
Maine	2	-	-	60	-	-
Total	183	291	+59	4946	16325	+230

Source: National Federation Of State High School Associations, 1985.

TABLE III

PREP SCHOOL PLAYING OPPORTUNITY PER STATE: 1985

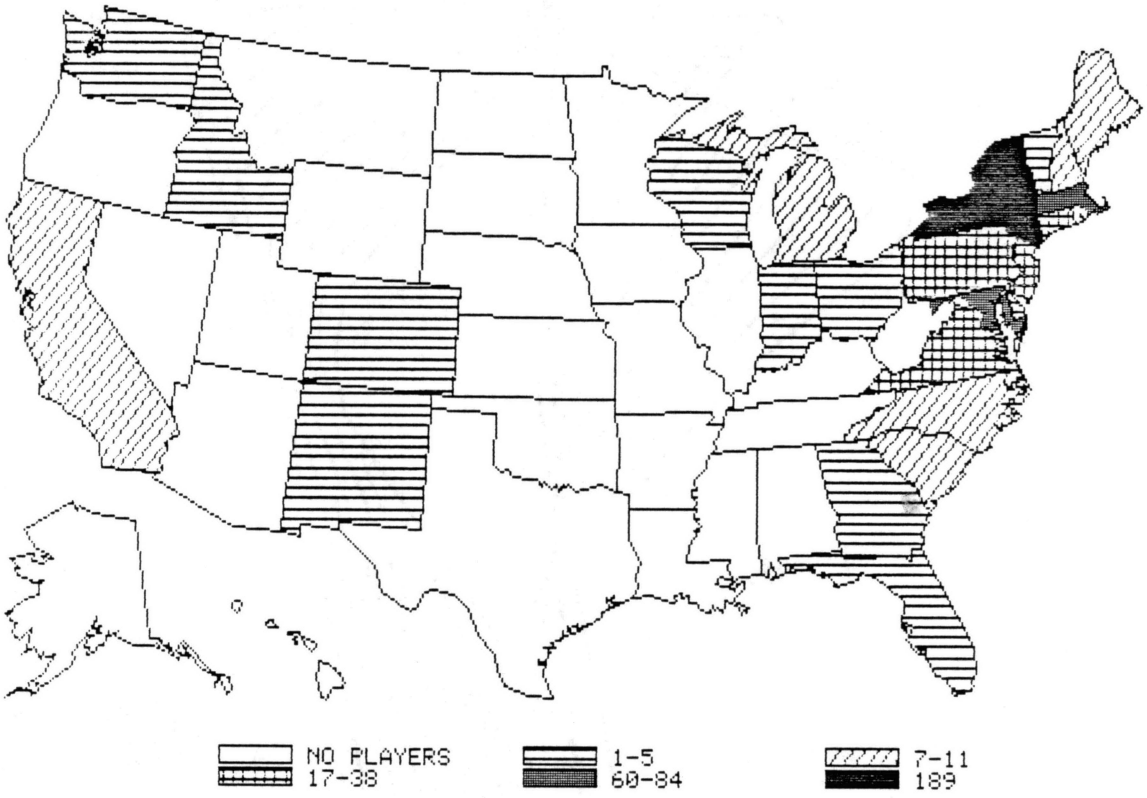
State	Prep Programs
Massachusetts	32
Connecticut	30
New York	28
Pennsylvania	19
Maryland	18
New Jersey	14
Virginia	14
New Hampshire	10
California	9
Maine	8
Rhode Island	8
North Carolina	7
Colorado	5
Florida	5
Dist. of Col.	4
Michigan	4
Ohio	3
Washington	2

(Continued)

TABLE III

State	Prep Programs
Delaware	1
Georgia	1
Idaho	1
Indiana	1
New Mexico	1
Vermont	1
Wisconsin	1
Total	227

Source: Guide To Independent Secondary Schools 1985-86, New York: Peterson's Guide 1985.



Source: 1986 NCAA Lacrosse Rosters Federation Of State High School Associations.

Figure 5. Secondary School Playing Opportunity Per State: 1986

likely that expansion of the current 145 member NCAA is certain to occur in the near future.

NCAA Playing Opportunity

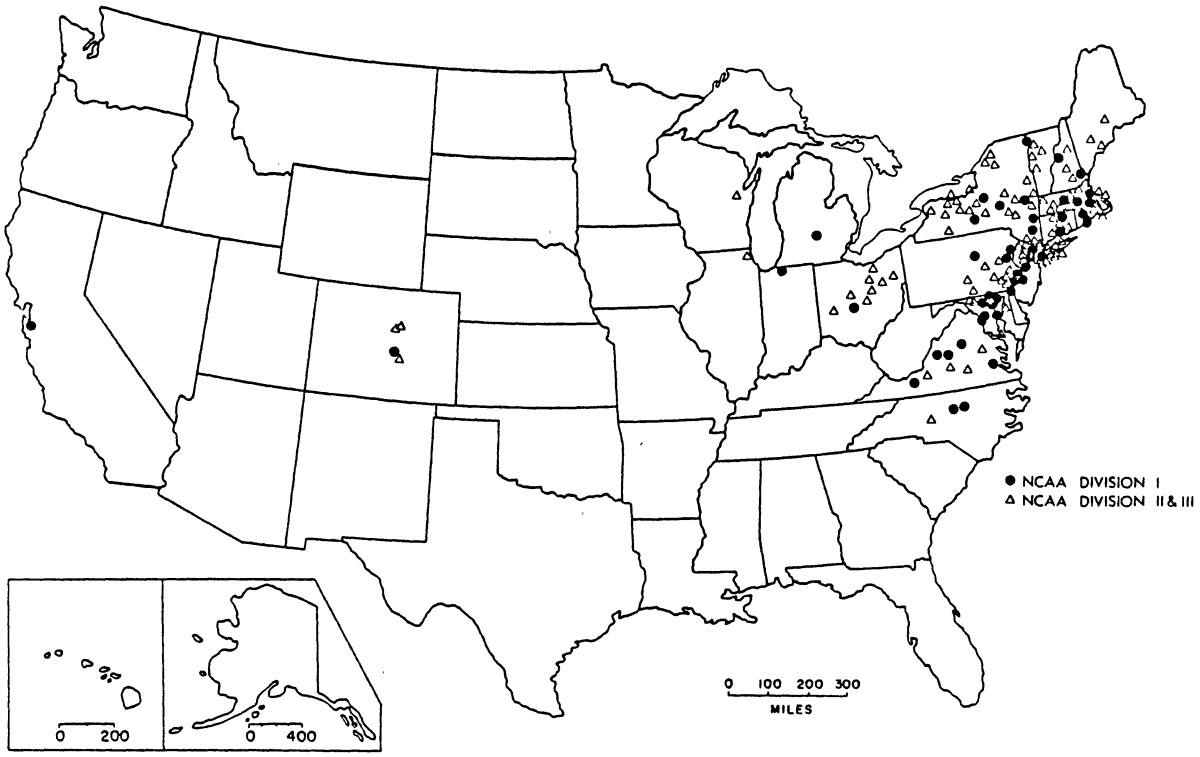
Total Playing Opportunity.

Generally playing opportunities at the NCAA division I, II, and III levels are confined geographically to the east coast (Appendix A, Figure 6). Exceptions occur in the states of Colorado (4), California (1), and the midwestern states of Ohio (9), Indiana(1), Illinois (1), Michigan (1), and Wisconsin (1).

The opportunity to play either division I, II, or III lacrosse varies from state to state (Table IV). Division I lacrosse is considered the most competitive. With few exceptions, division I schools acquire the most talented lacrosse players in the country. Division I schools have the financial backing to provide the best facilities and equipment, and most important, a highly competitive schedule.

At the division I level, New York, Pennsylvania, and Maryland lead the country in number of programs, with eight, seven, and six respectively. New York state leads the country with 26 division III programs, 34 percent of all small school programs.

Playing opportunity varies from region to region due to the unbalanced distribution of division I, II, and III lacrosse programs (Table V). The five geographically



Source: NCAA: 1986

Figure 6. NCAA Division I, II, and III Lacrosse Programs

TABLE IV

NCAA PLAYING OPPORTUNITY: DIVISION I, II, III

State	Div. I	Div. II	Div. III	Total
New York	8	5	26	39
Mass.	4	3	11	18
Pennsylvania	7	2	7	16
Maryland	6	1	4	11
Ohio	1	1	7	9
Virginia	5	1	3	9
New Jersey	3	0	5	8
Connecticut	2	1	3	6
New Hampshire	2	1	2	5
Vermont	1	1	3	5
Colorado	1	2	1	4
Maine	0	0	3	3
No. Carolina	2	1	0	3
Rhode Island	2	0	0	2
California	1	0	0	1
Delaware	1	0	0	1

(Continued)

TABLE IV

State	Div. I	Div. II	Div. III	Total
Dist. of Col.	1	0	0	1
Illinois	0	0	1	1
Indiana	1	0	0	1
Michigan	1	0	0	1
Wisconsin	0	0	1	1
Total	49	19	77	145

TABLE V

REGIONAL PLAYING OPPORTUNITY: 1986

	Division			
Region	I	II	III	Total
Atlantic	15 (31%)	3 (16%)	7 (9%)	25 (17%)
New England	11 (22%)	6 (32%)	22 (29%)	39 (27%)
Metro	18 (37%)	7 (37%)	38 (49%)	63 (43%)
Midwest	3 (6%)	1 (5%)	9 (12%)	13 (9%)
West	2 (4%)	2 (10%)	1 (1%)	5 (4%)
Total	49 (34%)	19 (13%)	77 (53%)	145 (100%)

defined regions consist of:

Atlantic: Delaware, Washington D.C., Maryland, North Carolina, Virginia

New England: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Metro: New Jersey, New York, Pennsylvania

Midwest: Illinois, Indiana, Michigan, Ohio, Wisconsin

West: California, Colorado

The Metro region has the highest percentage (43 percent) of the NCAA playing opportunities overall. New England is second with 27 percent. Combined, the Metro and New England regions contain 70 percent of all playing opportunities in the nation.

At the division I level, the Metro region is followed by the Atlantic with 37 percent and 31 percent of the programs, respectively. The east coast (Atlantic, New England, and Metro) has 90 percent of the division I lacrosse programs.

The smaller school programs are concentrated in the Metro and New England regions. In these two regions 78 percent of the division III lacrosse programs can be found. The opportunity to play lacrosse is more balanced geographically at the division I level than it is at the

division III level.

Per Capita Playing Opportunity.

The opportunity to play lacrosse is further affected by the populations of each state and the corresponding production of players. On a per capita basis, Vermont, with a 15.27 index, leads all other states by far (Table VI). The next closest state is New Hampshire at 8.49. The opportunity to play lacrosse in these two New England states is much higher than it is in the rest of the country on a per capita basis (Figure 7). Outside of New England the next highest per capita rate is in Maryland at 4.08.

The opportunity to play lacrosse at the NCAA level, which ultimately controls the growth of lacrosse in the United States, is available in only 20 states and emphasized in just 14 eastern states. The overall availability of lacrosse programs in New England, particularly division III teams, indicates an emphasis placed on participation. The high per capita rates in the Metro, Atlantic, and New England regions in general are double to triple the national average. A large gap between the states which have lacrosse opportunities and those which have few or none is quite evident.

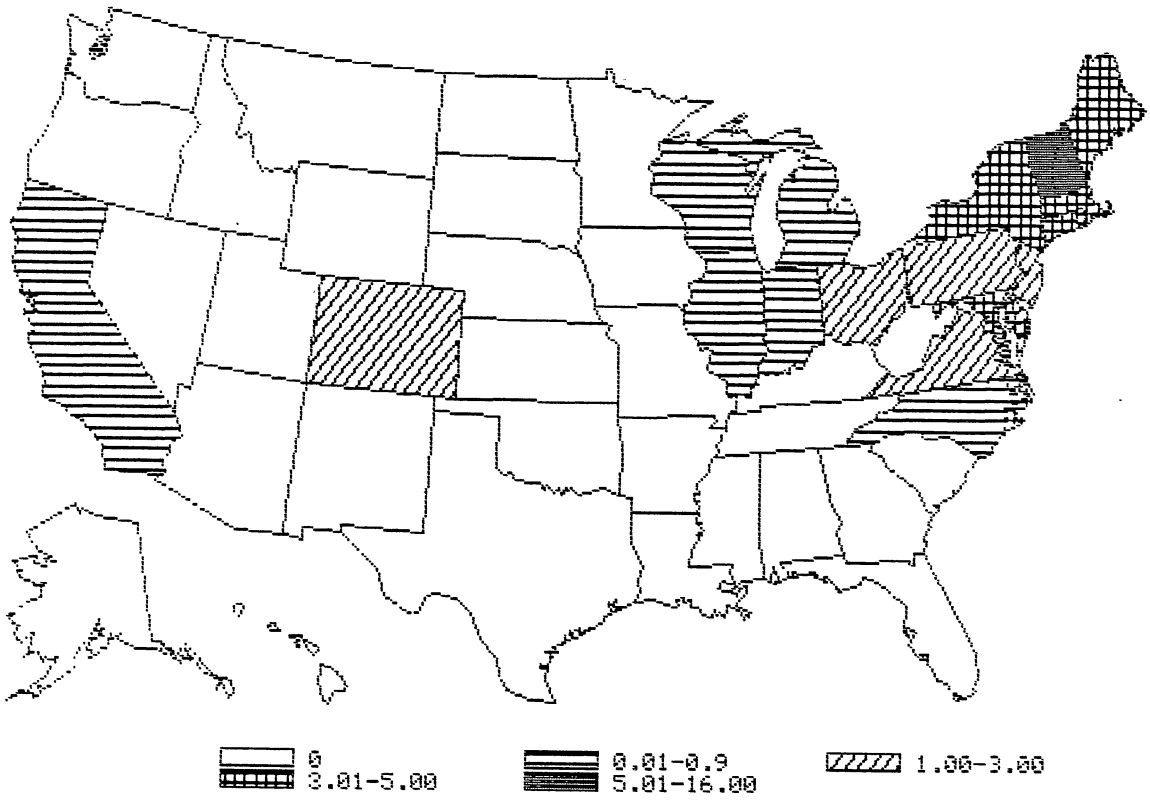
Locations of the Most Successful Teams

Where the opportunity exists to play the highest

TABLE VI

NCAA PER CAPITA OPPORTUNITY PER STATE

State	Index	State	Index
Vermont	15.27	Colorado	2.16
New Hampshire	8.49	Pennsylvania	2.11
Massachusetts	4.90	New Jersey	1.70
Maine	4.17	Ohio	1.30
Maryland	4.08	North Carolina	0.80
New York	3.47	Wisconsin	0.33
Rhode Island	3.30	Indiana	0.28
Connecticut	3.02	Michigan	0.14
Delaware	2.63	Illinois	0.14
Virginia	2.63	California	0.07
Dist. of Col.	2.45		



Source: NCAA: 1986

Figure 7. NCAA Per Capita Playing Opportunity: 1986

quality of lacrosse is subject to yearly public debates. Inevitably, one team to be mentioned is Johns Hopkins University of Baltimore, Maryland. Johns Hopkins consistantly is one of the top contenders for the national championship, and has been ever since the university began playing lacrosse in the late 1800's. Records on the intercollegiate champions from 1881-1986 allow for a historical perspective on the best teams to have played the sport at the division I level (Table VII).

The domination of NCAA lacrosse by Johns Hopkins, and the United States Naval Academy of Annapolis, Maryland, over the rest of the intercollegiate competition has occurred almost to the exclusion of any out-of-state competition (Figure 8). Since 1881 the state of Maryland has won or shared 71 of a possible 120 intercollegiate championships (Table VIII).

Specifically Johns Hopkins University of Baltimore has won more intercollegiate titles (42) than any other college (Table IX). Navy has won 22 titles, and the University of Maryland ten. Beginning in 1971, the NCAA has had a national tournament to decide the division I champion. Since 1971, Johns Hopkins has won six of sixteen titles, and has been in the finals twelve times. The University of North Carolina, the 1986 NCAA champion, has won three titles. Cornell University won titles in 1971, 1976, and 1977.

Table IX separates the championships into two time

TABLE VII

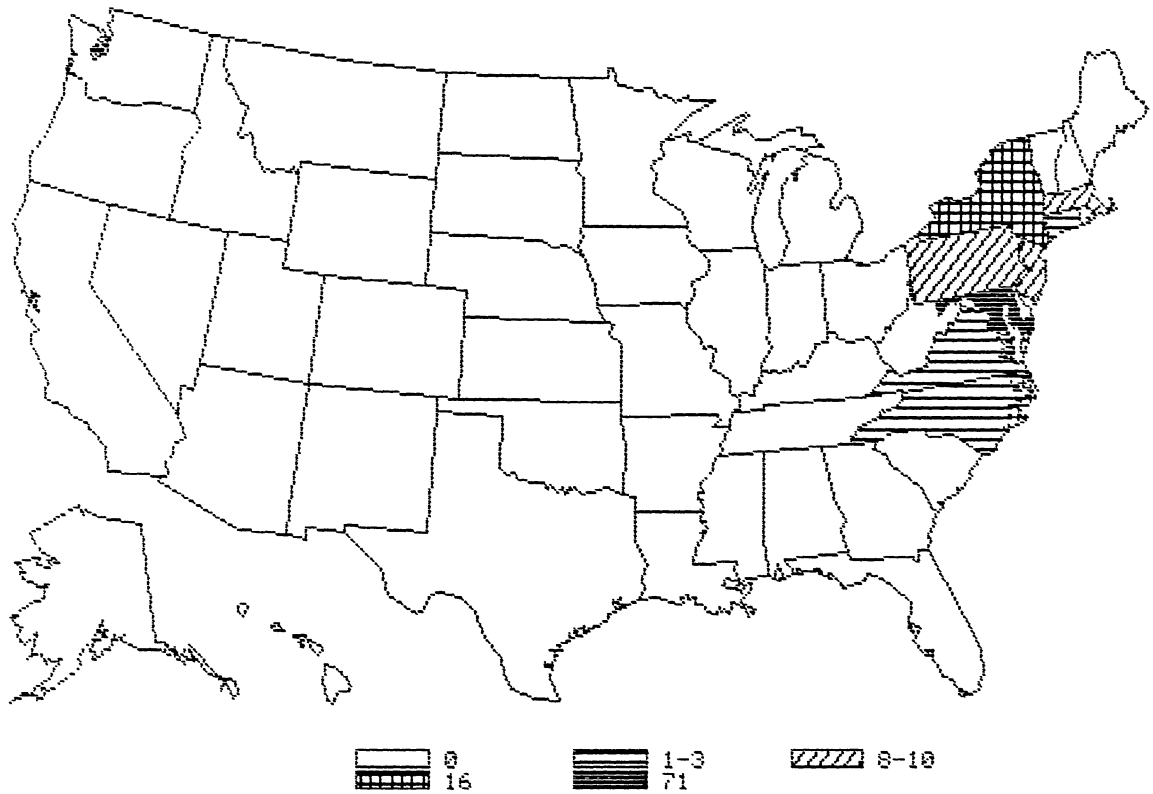
NATIONAL INTERCOLLEGIATE LACROSSE CHAMPIONS 1881-1986

School	Years
Johns Hopkins University, MD	1891, 1898-1900, 1902-03, 1906-09, 1911, 1913, 1915, 1926-28, 1932-34, 1941, 1947-50, 1957, 1959, 1967-70, 1974, 1978-80, 1984-85.
U.S Naval Academy, MD	1914, 1918-22, 1925, 1938, 1943, 1945-46, 1949, 1954, 1960-67, 1970.
University of Maryland	1936-37, 1939-40, 1955-56, 1967, 1973, 1975.
U.S. Military Academy, NY	1923, 1944-45, 1951, 1958-59, 1961, 1969.
Princeton University, NJ	1883-84, 1888-89, 1935, 1937, 1942, 1951, 1953.
Harvard University, MA	1881-83, 1885-87, 1912-13.
Lehigh University, PA	1890, 1893, 1896-97, 1916-17, 1921.
Cornell University, NY	1907, 1971, 1976-77.
Swarthmore College, PA	1901, 1904-05, 1910.
University of Virginia	1952, 1959, 1970, 1972.
University of North Carolina	1981-82, 1986.
St. Johns College, MD	1929-31.

(Continued)

TABLE VII

School	Years
Syracuse University, NY	1922, 1924, 1983.
Stevens Inst. of Tech, NJ	1892, 1894.
New York University, NY	1895.
Rensselaer Poly Inst, NY	1952.
Yale University, CT	1883.



Source: 1986 NCAA Division I Men's Lacrosse Statistics
Weyland, A. The Lacrosse Story, 1965.

Figure 8. Total NCAA Lacrosse Championships Per State: 1986

TABLE VIII

TOTAL NCAA LACROSSE CHAMPIONSHIPS PER STATE

1881-1986

State	Championships
Maryland	71
New York	16
Pennsylvania	10
Massachusetts	8
New Jersey	8
North Carolina	3
Virginia	3
Connecticut	1

TABLE IX

TOTAL NCAA LACROSSE CHAMPIONSHIPS PER SCHOOL

School	Titles 1881-1970	Yrs. of Play 1881-1970	Success Rate	Titles 1971-86	Success Rate
Johns Hopkins	36	78	.385	6	.375
Navy	22	62	.355	0	-
Univ. Of Md.	8	43	.186	2	.125
Army	8	63	.127	0	-
Harvard	8	84	.095	0	-
Princeton	8	59	.136	0	-
Lehigh	6	82	.073	0	-
Cornell	1	74	.014	3	.188
Swarthmore	3	73	.041	0	-
Univ. Of NC	0	32	-	3	.188
St. Johns(MD)	3	14	.214	0	-
Syracuse	2	50	.040	1	.063
Univ. Of VA	2	45	.044	1	.063
NYU	1	12	.083	0	-
RPI	1	33	.030	0	-
Yale	1	56	.018	0	-

periods to differentiate between the old and the new intercollegiate lacrosse powers. The success rate refers to the number of championships per years of play.

The scepter of power in intercollegiate lacrosse is heavily concentrated. Havard won the first intercollegiate title in 1881, and has not won another championship since 1913. Yale won its only title in 1883. Swarthmore and Lehigh of Pennsylvania have not won the championship since 1910 and 1921 respectively. In fact, since 1953 only eight teams have won the national title. These eight teams, located in four states, have combined to win 67 percent of the national titles for Maryland, 19 percent for New York, and seven percent each for North Carolina, and Virginia.

A top ten list created by a team's performance over the last 30 years with a preference given to recent success would include:

1. Johns Hopkins University, MD
2. University of North Carolina, NC
3. Syracuse University, NY
4. University of Virginia, VA
5. U.S. Naval Academy, MD
6. Hobart & William Smith College, NY
7. University of Maryland, MD
8. Cornell University, NY
9. U.S. Military Academy, NY
10. Long Island University/C.W. Post, NY

Perhaps the only undisputedly ranked team in the top ten is Johns Hopkins University. Consistently successful for over 100 years of competition, Johns Hopkins is the perennial team to beat. The University of North Carolina, Syracuse University, and the University of Virginia have joined Johns Hopkins in recent years as top contenders for the national title.

The fifth through tenth teams in the rankings are more debatable. Navy, Cornell, and Army are ranked fifth, eighth, and ninth mainly due to their past success. Hobart, ranked sixth, is the reigning division III champion. Hobart has the ability to beat most division I schools. Maryland has had success in the past and is ranked seventh due to its consistent ability to be a top ten contender. Maryland is not ranked higher due to its record in the NCAA playoffs in the last five years.

C.W. Post is added mostly as a future prospect in division I. C.W. Post is geographically located in Nassau County, New York, the top producing county of lacrosse talent in the nation. An increased emphasis placed on the lacrosse program at C.W. Post in recent years indicates a tremendous potential for the school to become a top contender for the national title.

The Origin of NCAA Lacrosse Players

State Data

State Total Player Production. The east coast of the United States is the leading production region of NCAA lacrosse talent (Appendix B). Geographically confined, the seven states of New York, Maryland, Massachusetts, New Jersey, Connecticut, Pennsylvania, and Virginia combined in 1986 to produce 90 percent of all NCAA lacrosse players (Table X). New York and Maryland together produced 52 percent. New York state alone produced 39 percent of the players.

In comparison, in 1975, the top seven states mentioned above had a combined production rate of 84 percent. New York and Maryland produced 57 percent of the players. New York produced 34 percent of the lacrosse talent.

From 1975 to 1986 the top seven producing states increased their production of lacrosse players at a greater rate (84 - 90 percent) than the rest of the player producing states. As a result, the top seven states have increased the production gap between themselves and the rest of the nation. They did not achieve high production rates by default.

The overall increase in NCAA player production from 1975 to 1986 was 84 percent (Table XI). Four of the top seven producing states, Massachusetts, Connecticut, New

TABLE X

PERCENT PRODUCTION OF TOTAL PLAYERS TOP PRODUCING STATES: 1975 and 1986

State	1975	1986
New York	33.64	39.28
Maryland	23.85	12.88
Massachusetts	5.06	10.96
New Jersey	8.58	9.68
Connecticut	4.20	8.03
Pennsylvania	6.89	6.22
Virginia	1.59	2.57
Ohio	4.31	1.73
Rhode Island	0.80	1.22
New Hampshire	0.75	1.17
Colorado	0.90	0.97
Michigan	1.36	0.86
Illinois	0.61	0.56
Vermont	0.33	0.43
California	0.70	0.40

(Continued)

TABLE X

State	1975	1986
Florida	0.93	0.36
Maine	0.84	0.36
North Carolina	1.12	0.36
Texas	0.23	0.28
Dist. of Col.	0.28	0.25
Delaware	0.98	0.18
Total	97.95	98.69

TABLE XI

THE ORIGIN OF NCAA LACROSSE PLAYERS BY STATE USING TOTAL AND PER CAPITA VALUES: 1975 AND 1986

	Total Players			Location Quotient	
State	1975	1986	%Change	1975	1986
New York	718	1546	+115.3	3.57	5.07
Maryland	509	507	-	11.55	6.92
Massachusetts	108	429	+297.2	1.88	4.30
New Jersey	183	381	+108.2	2.78	2.98
Connecticut	89	316	+255.1	3.17	5.85
Pennsylvania	147	245	+66.7	2.06	1.19
Virginia	34	101	+197.1	0.59	1.09
Ohio	92	68	-26.1	0.86	0.36
Rhode Island	17	48	+182.4	1.43	2.92
New Hampshire	16	46	+187.5	2.23	2.88
Colorado	19	38	+100.0	0.70	0.77
Michigan	29	34	+17.2	0.48	0.21
Illinois	13	22	+69.2	0.12	0.11
Vermont	7	17	+142.9	1.62	1.91
California	15	16	+6.7	0.67	0.04
Florida	20	14	-30.0	0.30	0.08
Maine	18	14	-22.2	1.51	0.72
North Carolina	24	14	-41.7	0.36	0.14
Texas	5	11	+120.0	0.04	0.04
Dist. of Col.	6	10	+66.7	0.77	0.90

(Continued)

TABLE XI

State	Total Players 1975	1986	%Change	Location Quotient 1975	1986
Georgia	5	8	+60.0	0.09	0.08
Delaware	21	7	-66.7	4.10	0.68
Tennessee	1	5	+400.0	0.02	0.06
Washington	1	5	+400.0	0.02	0.07
West Virginia	3	5	+66.7	0.17	0.15
Hawaii	2	3	+50.0	0.19	0.18
Indiana	0	3	+300.0	0.00	0.03
Louisiana	3	2	-33.3	0.07	0.03
Minnesota	3	2	-33.3	0.07	0.03
Missouri	5	2	-60.0	0.09	0.02
Nebraska	0	2	+200.0	0.00	0.07
Oregon	2	2	0.0	0.09	0.04
Utah	0	2	+200.0	0.00	0.08
Wisconsin	5	2	-60.0	0.11	0.02
Arizona	0	1	+100.0	0.00	0.02
Idaho	1	1	0.0	0.13	0.06
Kentucky	3	1	-66.7	0.07	0.02

(Continued)

TABLE XI

State	Total Players 1975	Total Players 1986	%Change	Location Quotient 1975	Location Quotient 1986
Montana	2	1	-50.0	0.29	0.07
New Mexico	0	1	+100.0	0.00	0.04
South Carolina	4	1	-75.0	0.11	0.02
Alabama	1	0	-100.0	0.02	0.00
Arkansas	1	0	-100.0	0.05	0.00
Nevada	1	0	-100.0	0.24	0.00
Wyoming	1	0	-100.0	0.34	0.00
Total	2134	3936	+84.4		

Jersey, and Virginia combined, increased production by 196 percent between 1975 and 1986.

The states of Colorado, New Hampshire, Rhode Island, and Vermont have doubled to tripled their production rates. The increases generated by these minor producing states, combined, equaled 153 percent. Although significant to their respective state, and extremely important to the further expansion of the sport, an increase from 59 to 149 players has had a minor impact on the total production of NCAA lacrosse players in the nation.

Every state with 50 or more NCAA players except Maryland and Ohio increased production between 1975 and 1986. Maryland, perceived by many as the the lacrosse capitol of the country, actually decreased production by two players. Ohio thought to be the next rising lacrosse power decreased production 26 percent since 1975.

Delaware, Maine, and North Carolina, often perceived as lacrosse states, have lower levels of production than the western, and midwestern states of California, Illinois, and Michigan. Delaware, Maine, and North Carolina combined, produced 35 players in 1986, a reduction of 28 players since 1975.

New York state, with 1546 players, produced three times the number of players as Maryland, the next highest producer of lacrosse talent (Table XII). Massachusetts produced 429 players, 78 less than Maryland. New Jersey

TABLE XII

RANK ORDERING OF THE TOP 15 STATES BY TOTAL PLAYER PRODUCTION: 1986 AND 1975

	1986		1975	
Rank	State	Players	State	Players
1	New York	1546	New York	718
2	Maryland	507	Maryland	509
3	Massachusetts	429	New Jersey	183
4	New Jersey	381	Pennsylvania	147
5	Connecticut	316	Massachusetts	108
6	Pennsylvania	245	Ohio	92
7	Virginia	101	Connecticut	89
8	Ohio	68	Virginia	34
9	Rhode Island	48	Michigan	29
10	New Hampshire	46	North Carolina	24
11	Colorado	38	Delaware	21
12	Michigan	34	Florida	20
13	Illinois	22	Colorado	19
14	Vermont	17	Maine	18
15	California	16	Rhode Island	17

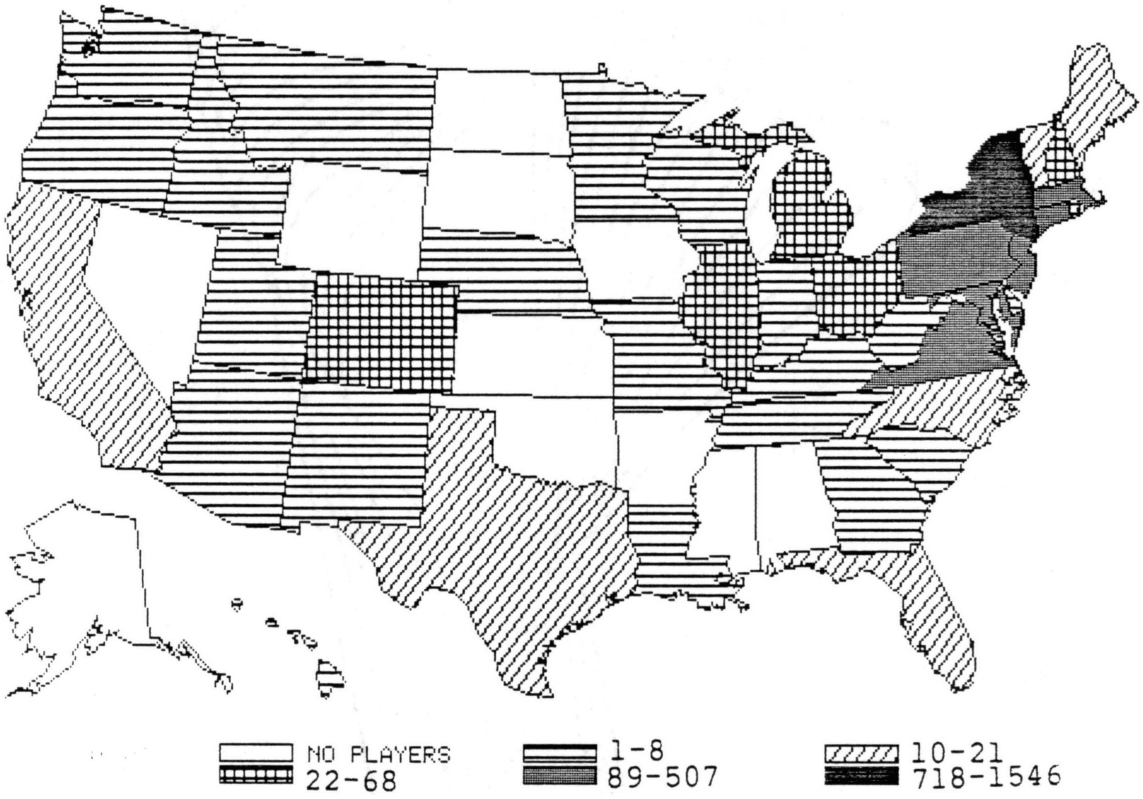
and Connecticut were not far behind the leaders with 381 and 316 players respectively (Figures 9 and 10).

The gap in the production rates between New York and Maryland has increased. While New York doubled it's production, Maryland has shown no growth in player production. The decreasing differences in production between Maryland and the remaining top producers is largely due to the accelerated production rates of Massachusetts, Connecticut, New Jersey, and Virginia.

State Per Capita Production. On a per capita basis, Maryland is the leading state with a location quotient of 6.92 (Figure 11 and Table XIII). The second ranked state on a per capita basis is Connecticut at 5.85, third is New York at 5.07, and fourth is Massachusetts at 4.30. Rhode Island, New Hampshire, and Vermont produced players above the national per capita average. These three New England states join the seven major producing states as the only states producing players above the national average.

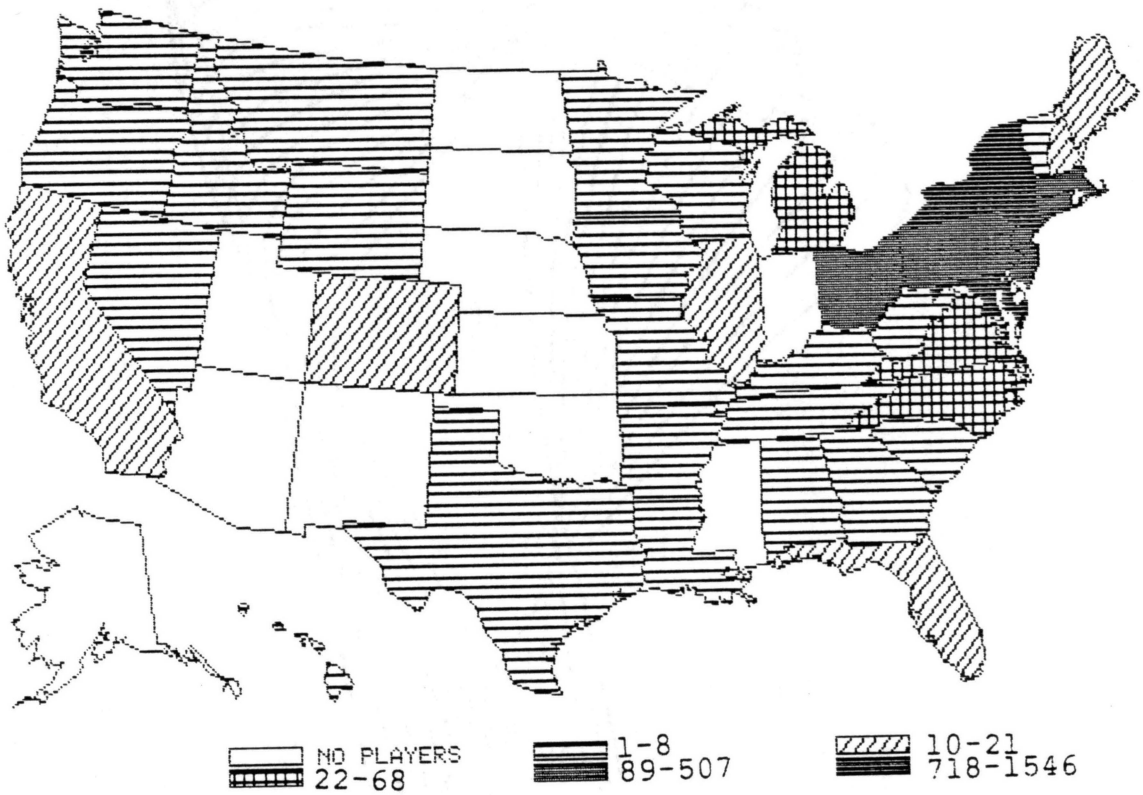
With the utilization of per capita values, the emphasis on lacrosse in the United States is concentrated mainly in New England, New York, New Jersey, and Pennsylvania. Maryland and Virginia are the only states having a per capita index above the national average outside of the northeast.

In 1975, Maryland had a location quotient of 11.55, far above the next closest state, Delaware with a 4.10 index. New York ranked third, had an index of 3.57,



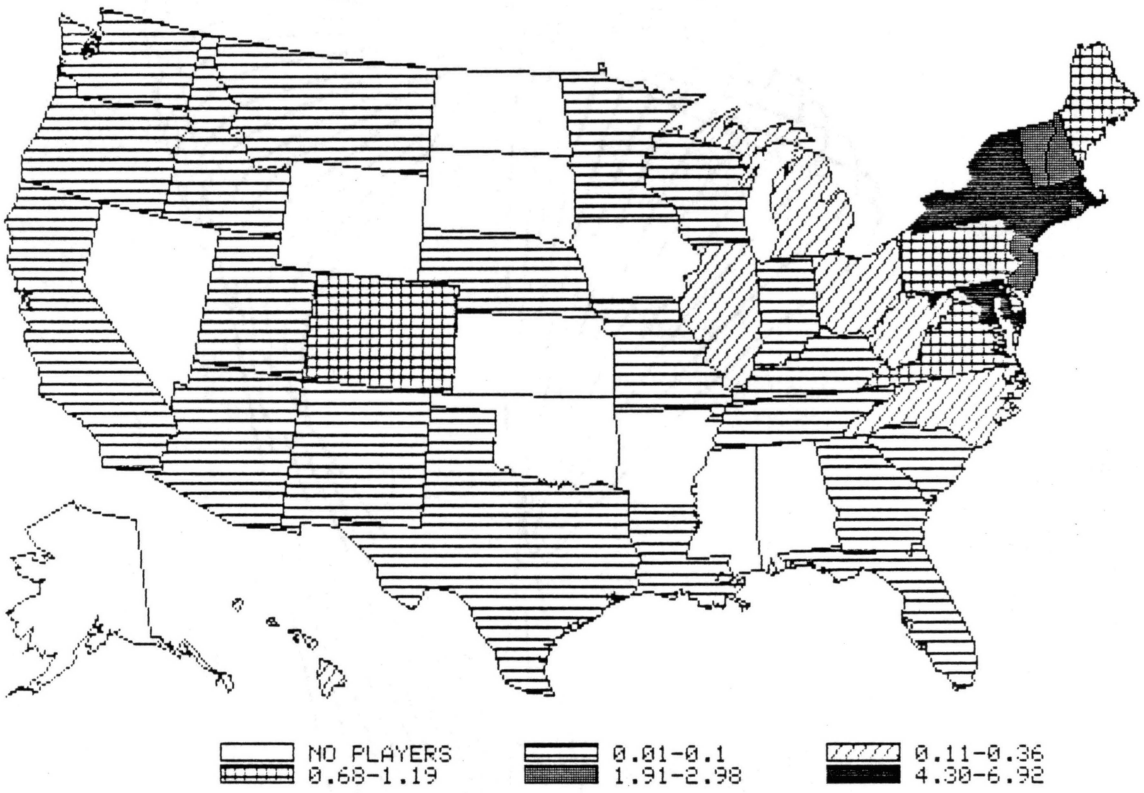
Source: 1986 NCAA Lacrosse Rosters

Figure 9. Total Player Production: 1986



Source: 1975 NCAA Lacrosse Rosters

Figure 10. Total Player Production Per State: 1975



Source: 1986 NCAA Lacrosse Rosters

Figure 11. Per Capita Player Production Per State: 1986

TABLE XIII

RANK ORDERING OF THE TOP 15 STATES BY LOCATION QUOTIENTS: 1986 & 1975

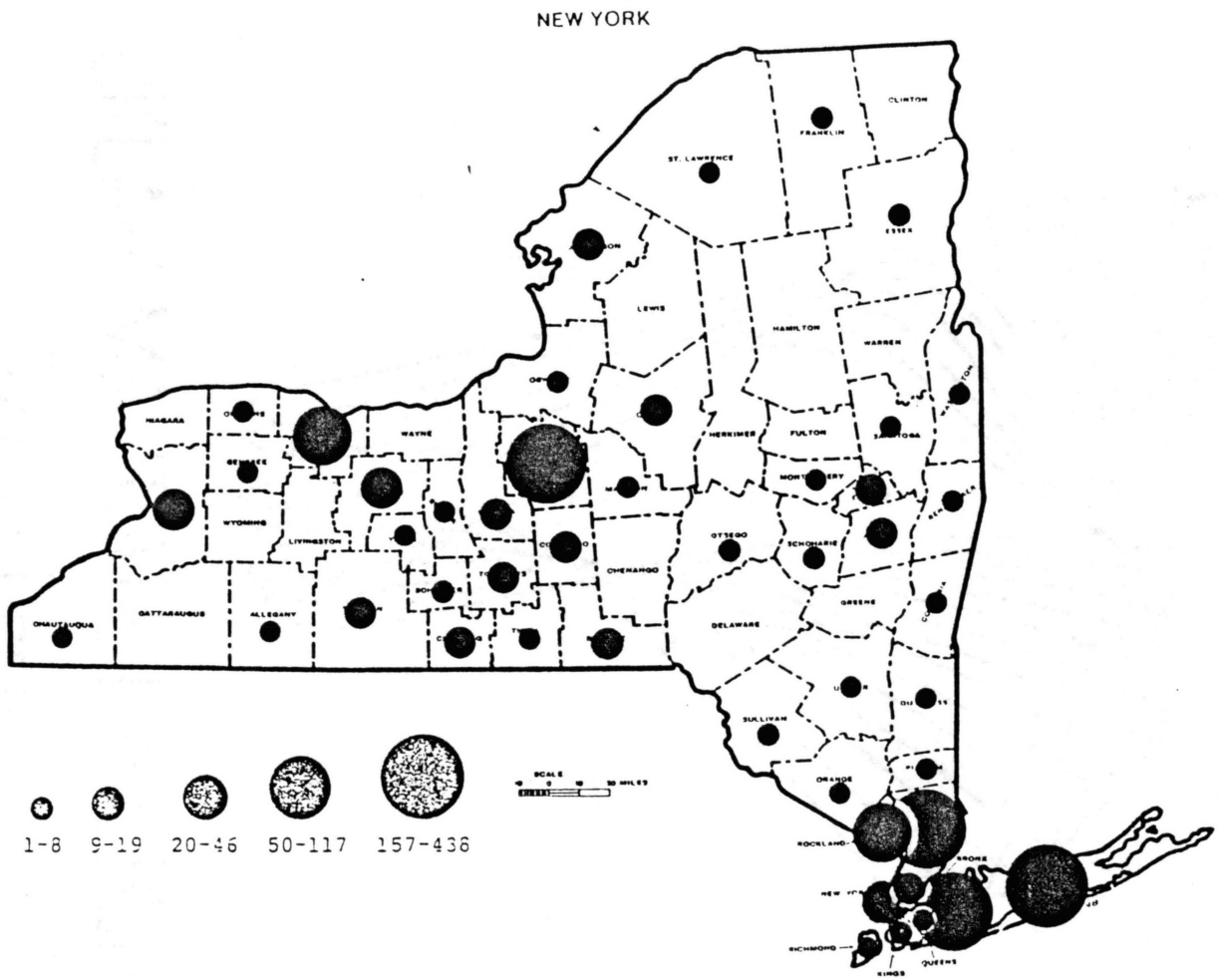
	1986		1975	
Rank	State	Index	State	Index
1	Maryland	6.92	Maryland	11.55
2	Connecticut	5.85	Delaware	4.10
3	New York	5.07	New York	3.57
4	Massachusetts	4.30	Connecticut	3.17
5	New Jersey	2.98	New Jersey	2.78
6	Rhode Island	2.92	New Hampshire	2.23
7	New Hampshire	2.88	Pennsylvania	2.06
8	Vermont	1.91	Massachusetts	1.88
9	Pennsylvania	1.19	Vermont	1.62
10	Virginia	1.09	Maine	1.51
11	Dist. of Col.	0.90	Rhode Island	1.43
12	Colorado	0.77	Ohio	0.86
13	Maine	0.72	Dist. of Col.	0.77
14	Delaware	0.68	Colorado	0.70
15	Ohio	0.36	California	0.67

fourth was Connecticut at 3.17. Maryland, with a smaller population base than New York, maintained the number one ranking in 1986. The most noticeable change occurred in Delaware which produced 0.68 percent of all players in 1986. Delaware dropped from second to fourteenth in the per capita indices rankings. Massachusetts replaced Delaware in the top five. Connecticut improved its ranking to second and New York remained third.

County Data

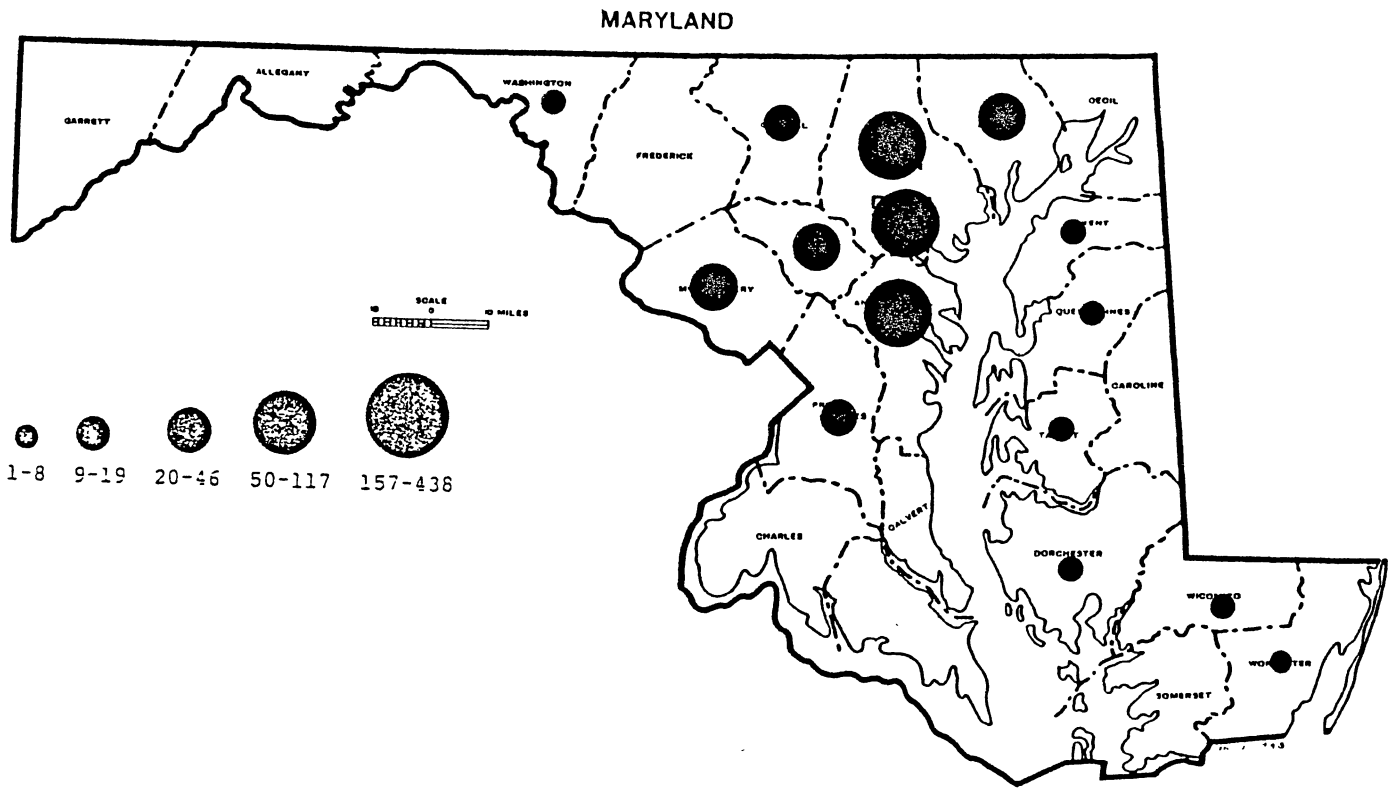
County Total Production. Lacrosse player production is not ubiquitous across each state. The regionalization of lacrosse emphasis in the United States may be analyzed in greater detail at the county level. A more detailed level of geographical analysis reveals lacrosse as a regional phenomenon at the state level (Figures 12-18). A select number of counties comprise the majority of the NCAA lacrosse players being produced (Table XIV).

The top ten counties in player production produced 1843 players or 47 percent of all players produced in 1986. The top ten counties remained the same between 1975 and 1986, only the rankings changed. In 1975, the top ten counties produced 1076 players for a 50 percent share of all players in the NCAA. Of the top five counties in 1975, two were from Long Island, New York, and three from the Baltimore, Maryland, area. Of the top five counties in 1986, three are from New York (Nassau, Suffolk, and



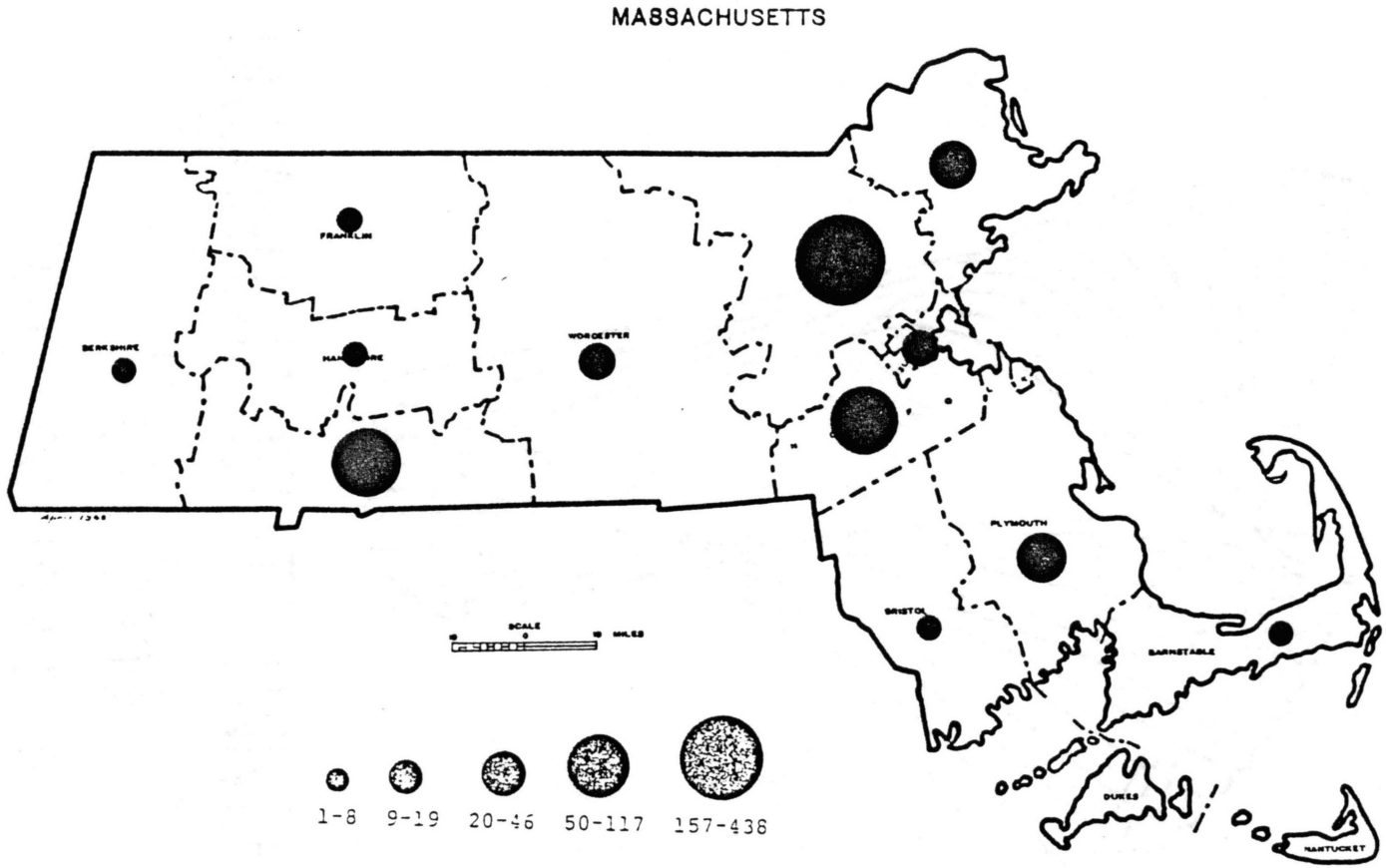
Source: 1986 NCAA Lacrosse Rosters

Figure 12. Total Player Production in NY Per County: 1986



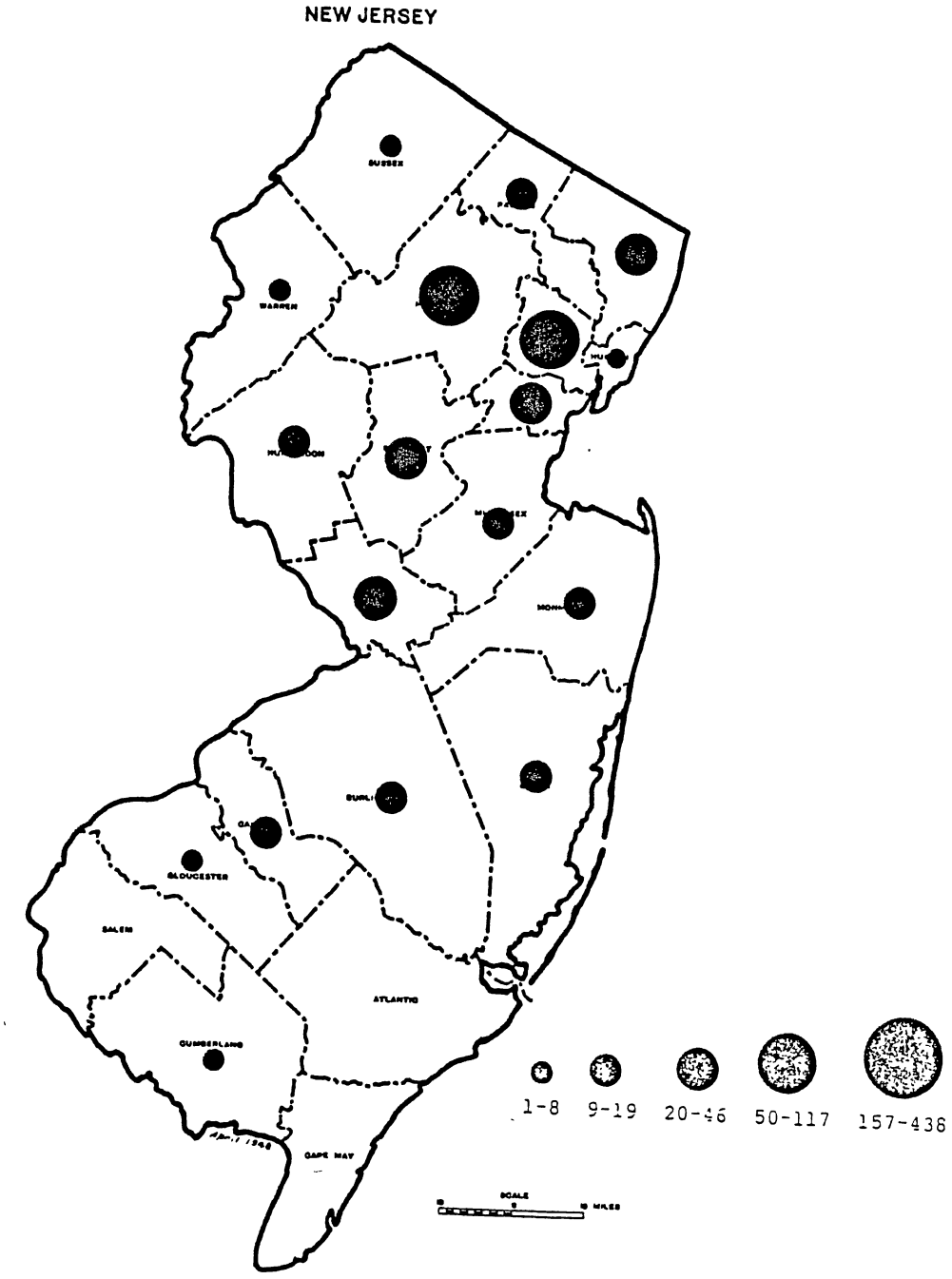
Source: 1986 NCAA Lacrosse Rosters

Figure 13. Total Player Production in MD Per County: 1986



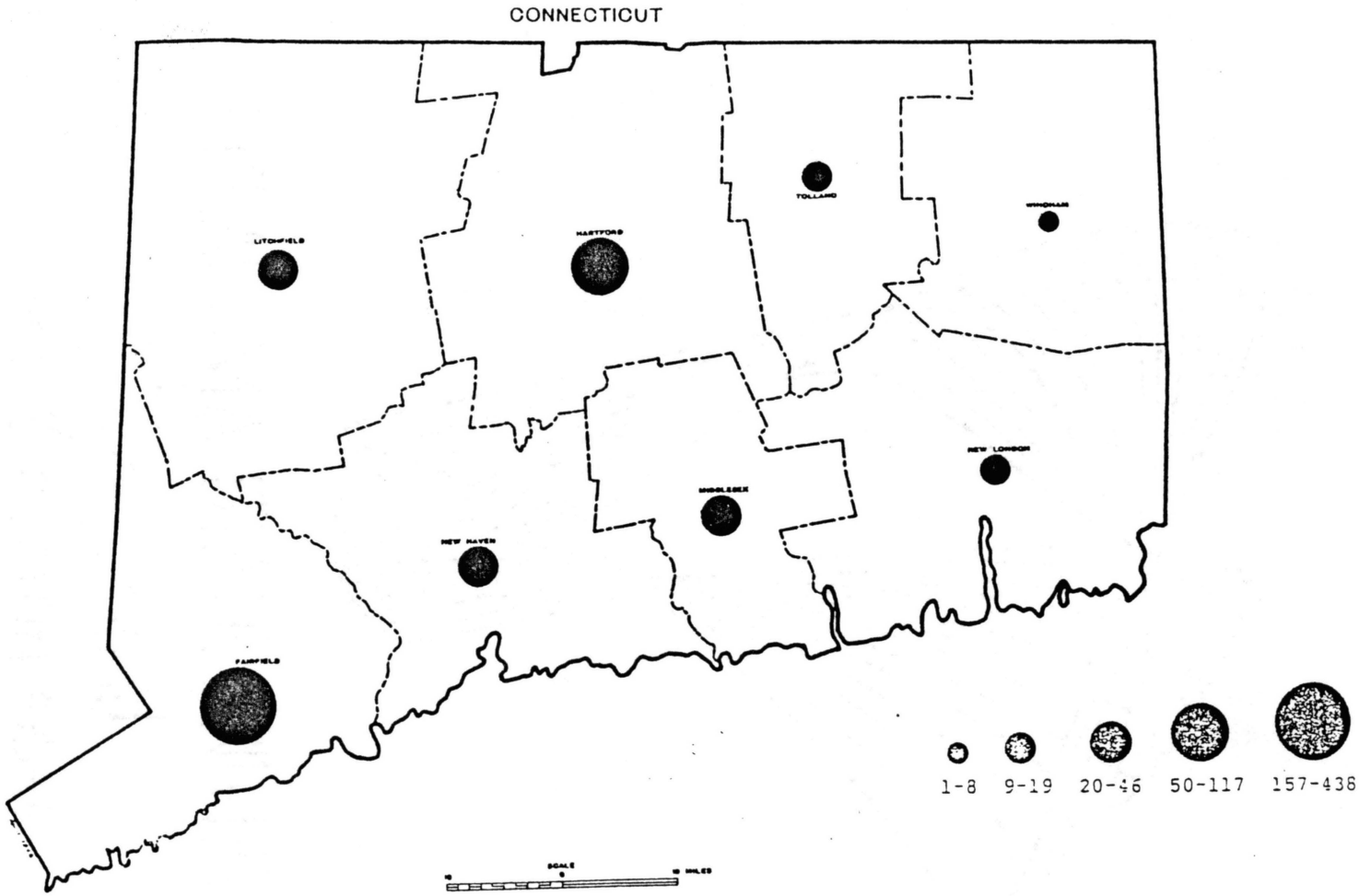
Source: 1986 NCAA Lacrosse Rosters

Figure 14. Total Player Production in MA Per County: 1986



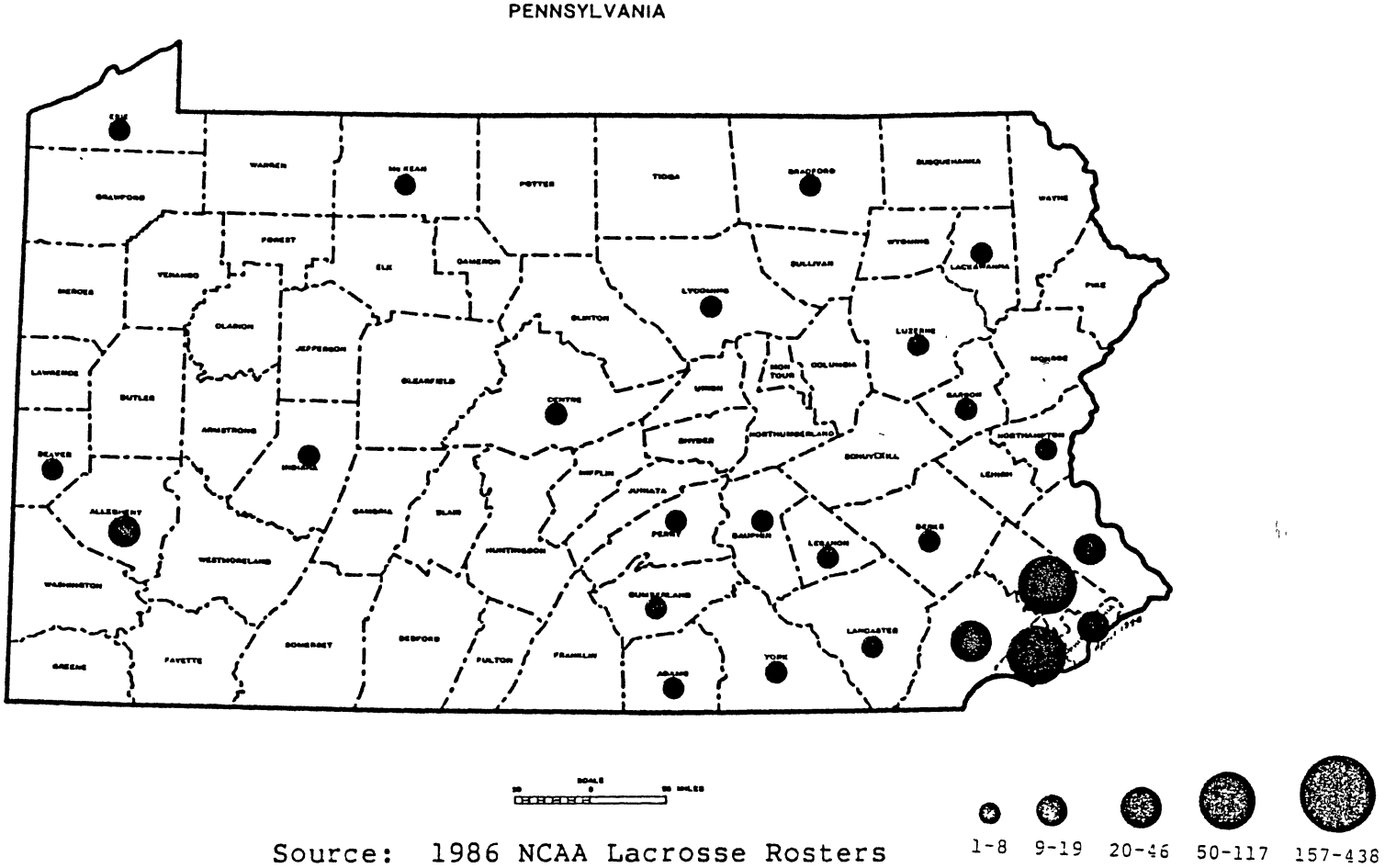
Source: 1986 NCAA Lacrosse Rosters

Figure 15. Total Player Production in NJ Per County: 1986



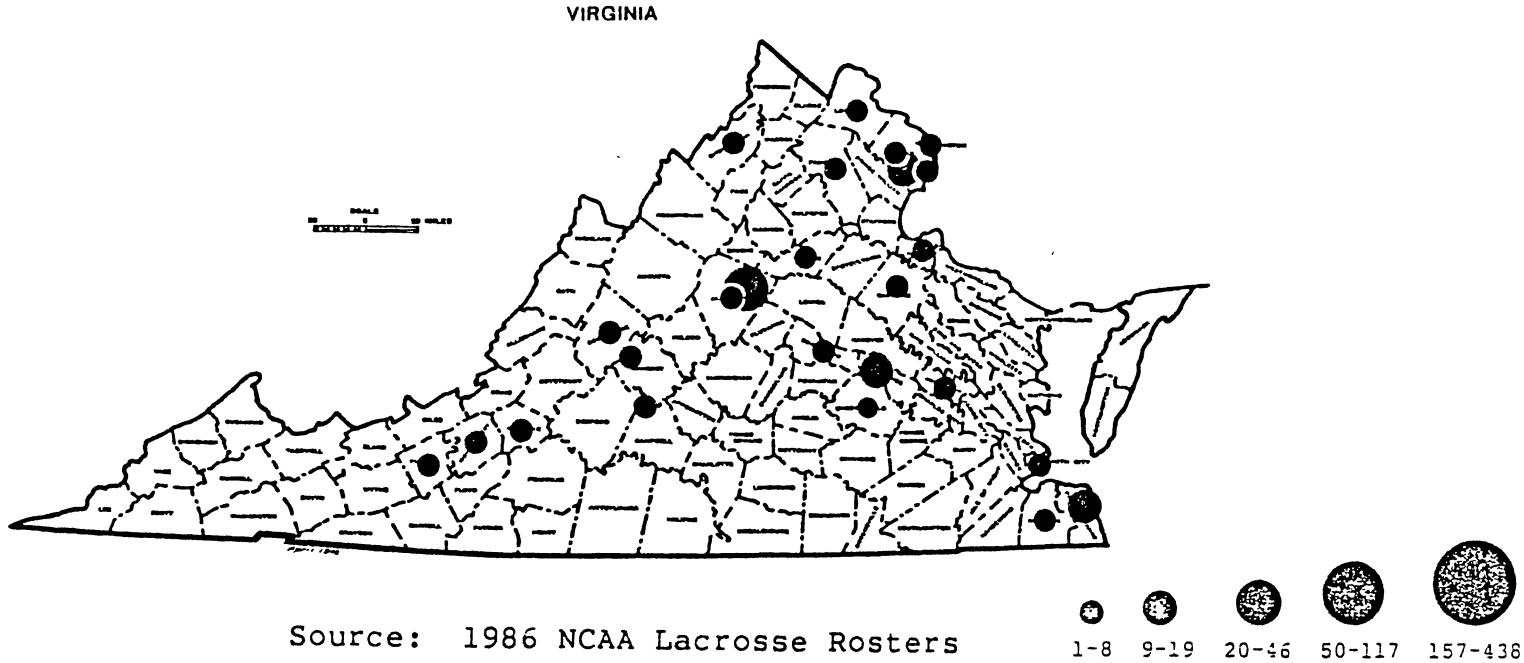
Source: 1986 NCAA Lacrosse Rosters

Figure 16. Total Player Production in CT Per County: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 17. Total Player Production in PA Per County: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 18. Total Player Production in VA Per County: 1986

TABLE XIV

TOP COUNTIES BY TOTAL PRODUCTION OF PLAYERS
WITH 25 PLAYERS OR MORE: 1986 & 1975

1986			1975		
County	State	Players	County	State	Players
Nassau	NY	421	Nassau	NY	258
Suffolk	NY	312	Baltimore City	MD	256
Onondaga	NY	200	Baltimore	MD	107
Middlesex	MA	182	Suffolk	NY	98
Fairfield	CT	163	Ann Arundel	MD	80
Westchester	NY	160	Onondaga	NY	80
Balt. City	MD	107	Westchester	NY	57
Ann Arundel	MD	106	Middlesex	MA	51
Baltimore	MD	105	Montgomery	PA	45
Monroe	NY	87	Fairfield	CT	44
Hartford	CT	85	Monroe	NY	39
Montgomery	PA	77	Essex	NJ	32
Essex	NJ	73	Hartford	CT	31
Morris	NY	62	Morris	NJ	29
Norfolk	MA	61	Essex	MA	26
Rockland	NY	58	Norfolk	MA	25
Delaware	PA	57			
Hampden	MA	54			
Union	NJ	47			
Harford	MD	46			

(Continued)

TABLE XIV

1986		
County	State	Players
Essex	MA	44
Howard	MD	43
New Haven	CT	42
Montgomery	MD	34
Bergen	NJ	31
Mercer	NJ	31
Providence	RI	31
Franklin	OH	30
Somerset	NJ	30
Chester	PA	29
Ontario	NY	25

Onondaga), one each is from Massachusetts and Connecticut.

Fairfield County, Connecticut, is the fastest growing county in the nation in player production. Fairfield County had an increase in production of 270 percent since 1975. The second fastest growing county in the nation is Middlesex County, Massachusetts, with an increase of 257 percent.

Since 1975, the top producing counties of NCAA lacrosse players, which have switched most dramatically, include Suffolk, Onondaga, and Westchester, New York; Middlesex, Massachusetts; and Fairfield, Connecticut. These five counties increased their player production from 330 to 1017 players or 208 percent. Monroe, and Nassau counties increased production 123 percent, and 63 percent respectively. The three Maryland counties in the top ten (Baltimore, Baltimore City, and Ann Arundel) decreased production 125 players, or 28 percent by 1986.

Nassau and Suffolk Counties of Long Island, New York, produced 47 percent of New York state's players, and 19 percent of the nation's total. Nassau and Suffolk combined, produce more lacrosse players (733) than the second highest producing state, Maryland. Including Westchester County, just north of New York City, and Onondaga County of central New York, these four counties combined to produce 1093 players, or 71 percent of the state's lacrosse talent, 28 percent of the nation's total.

Ann Arundel, Baltimore City, and Baltimore Counties

of Maryland produced 87 percent of Maryland's NCAA players in 1975. In 1986 these same three counties produced 63 percent of its state's players. Baltimore City and Baltimore are the only major producing counties to have actually decreased production from 1975 to 1986.

The Maryland counties of Howard and Harford have recently developed as lacrosse producing counties offsetting the decline of players produced in the Baltimore area. Howard and Harford counties have increased their player production from 13 to 89 players (585 percent). These two counties in 1986 produced 18 percent of the state's NCAA lacrosse players compared to three percent in 1975.

Lacrosse production in the states of Massachusetts, Connecticut, and Pennsylvania is primarily based in a few dominating counties. Middlesex, Norfolk, and Essex counties, Massachusetts, produce 67 percent of the state's players. Fairfield and Hartford Counties, produce 78 percent of Connecticut's players. Montgomery and Delaware Counties of suburban Philadelphia produce 55 percent of Pennsylvania's NCAA players.

Overall, there were 31 counties which produce 25 or more players. New York has seven, New Jersey six, Maryland six, and Massachusetts four. There are isolated counties in Colorado and Ohio that emphasize lacrosse.

Hierarchical diffusion has created the opportunity for the sport of lacrosse to approach ubiquity across the

country. Franklin County of Ohio produces 31 players. Isolated areas in such states as California, Florida, and Texas are beginning to produce lacrosse players due to the increased opportunity to participate at the secondary school and collegiate level.

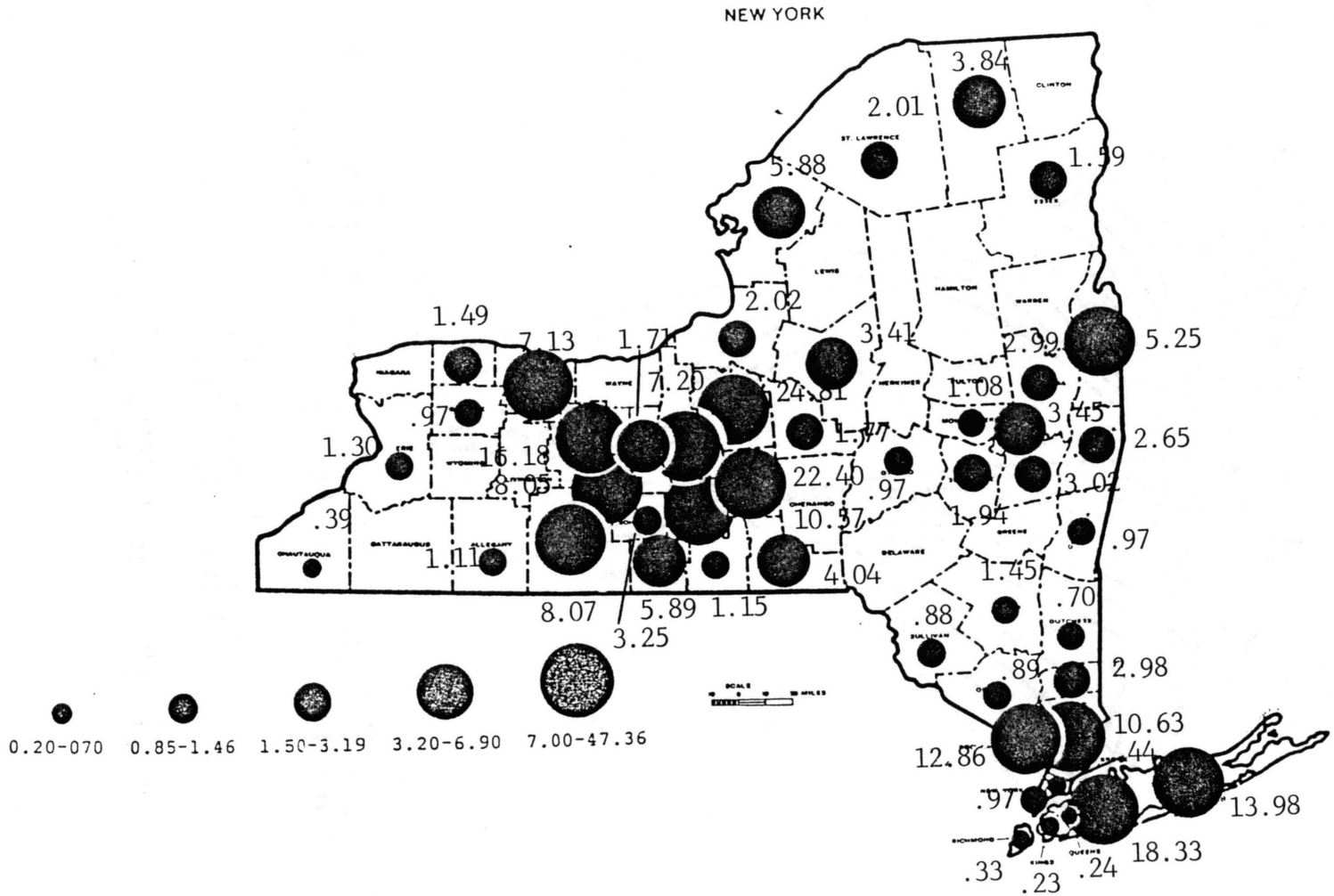
County Per Capita Production. On a per capita basis the top county is Charlottesville, Virginia, with a location quotient of 30.28 (Table XV). Many counties in Virginia are smaller in size and population than the average county. The smaller population size leads to an unusually high per capita index. Anomalies in the results occur in the state of Virginia. To offset misleading per capita values created in low populated areas, at least ten players must be produced per county to be considered as a top producer of lacrosse talent.

At the per capita level of observation, less populated counties can be compared equally to more populated counties (Figures 19-25). Of the top ten per capita producing counties, six are from New York. Less populated central New York counties have relatively high per capita rates comparable with the highly populated counties of Nassau and Suffolk. Howard, Harford, and Carrol counties in Maryland have comparable location quotients with the more heavily populated Baltimore area. Hunterdon and Somerset Counties of New Jersey have rates comparable to the higher populated Essex and Morris Counties.

TABLE XV

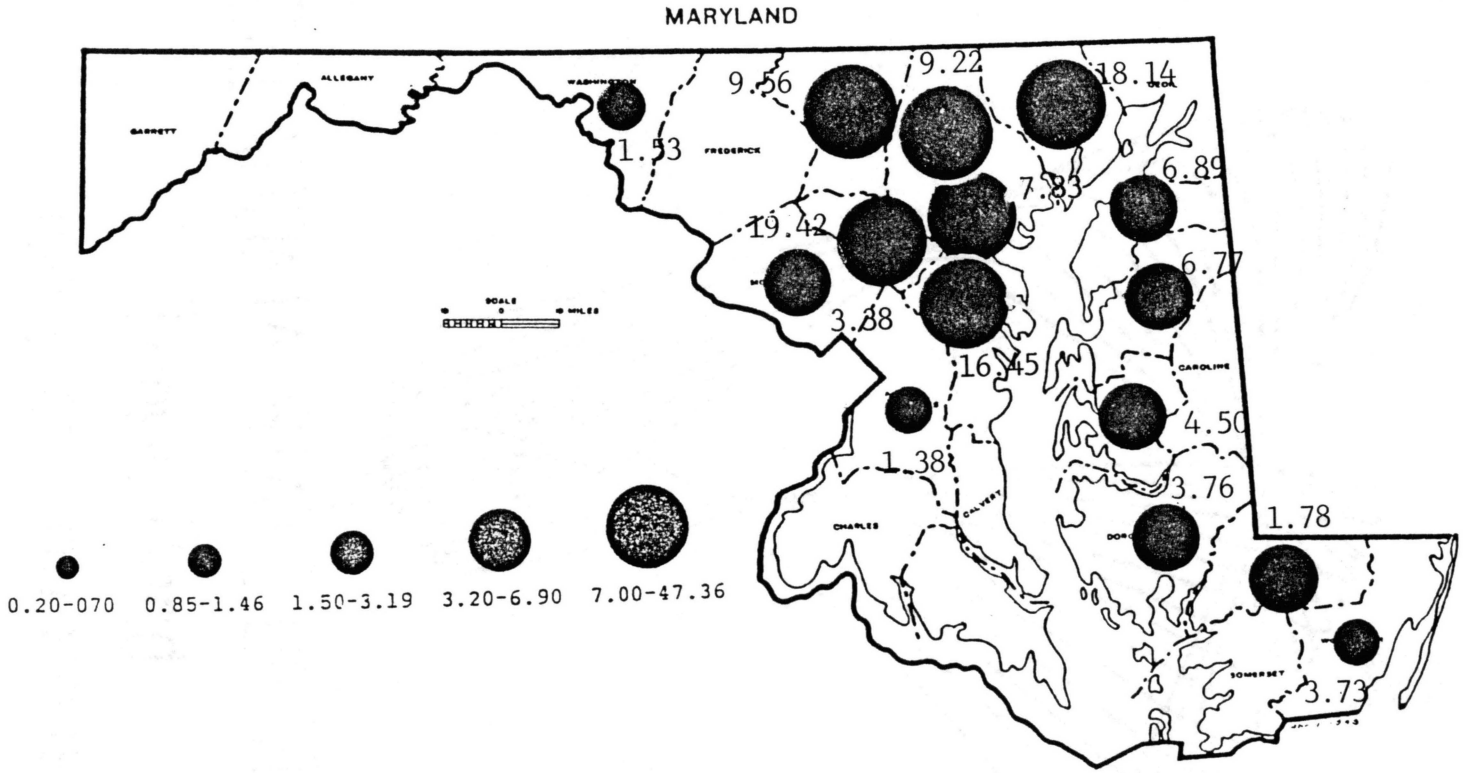
RANK ORDERING OF THE TOP TWENTY COUNTIES BY PER CAPITA PLAYER PRODUCTION: 1986 (10 PLAYERS OR MORE)

Rank	County	State	Index	Players
1	Charlotts'vl	VA	30.28	21
2	Onondaga	NY	24.81	200
3	Cortland	NY	22.40	19
4	Howard	MD	19.42	40
5	Nassau	NY	18.34	421
6	Harford	MD	18.14	46
7	Ann Arundel	MD	16.45	106
8	Ontario	NY	16.18	25
9	Suffolk	NY	13.98	312
10	Rockland	NY	12.86	58
11	Fairfield	CT	11.62	163
12	Westchester	NY	10.63	160
13	Tompkins	NY	10.57	16
14	Carrol	MD	9.56	16
15	Baltimore	MD	9.22	105
16	Hunterdon	NJ	9.22	14
17	Morris	NJ	8.75	62
18	Somerset	NJ	8.50	30
19	Balt. City	MD	7.83	107
20	Middlesex	MA	7.66	182



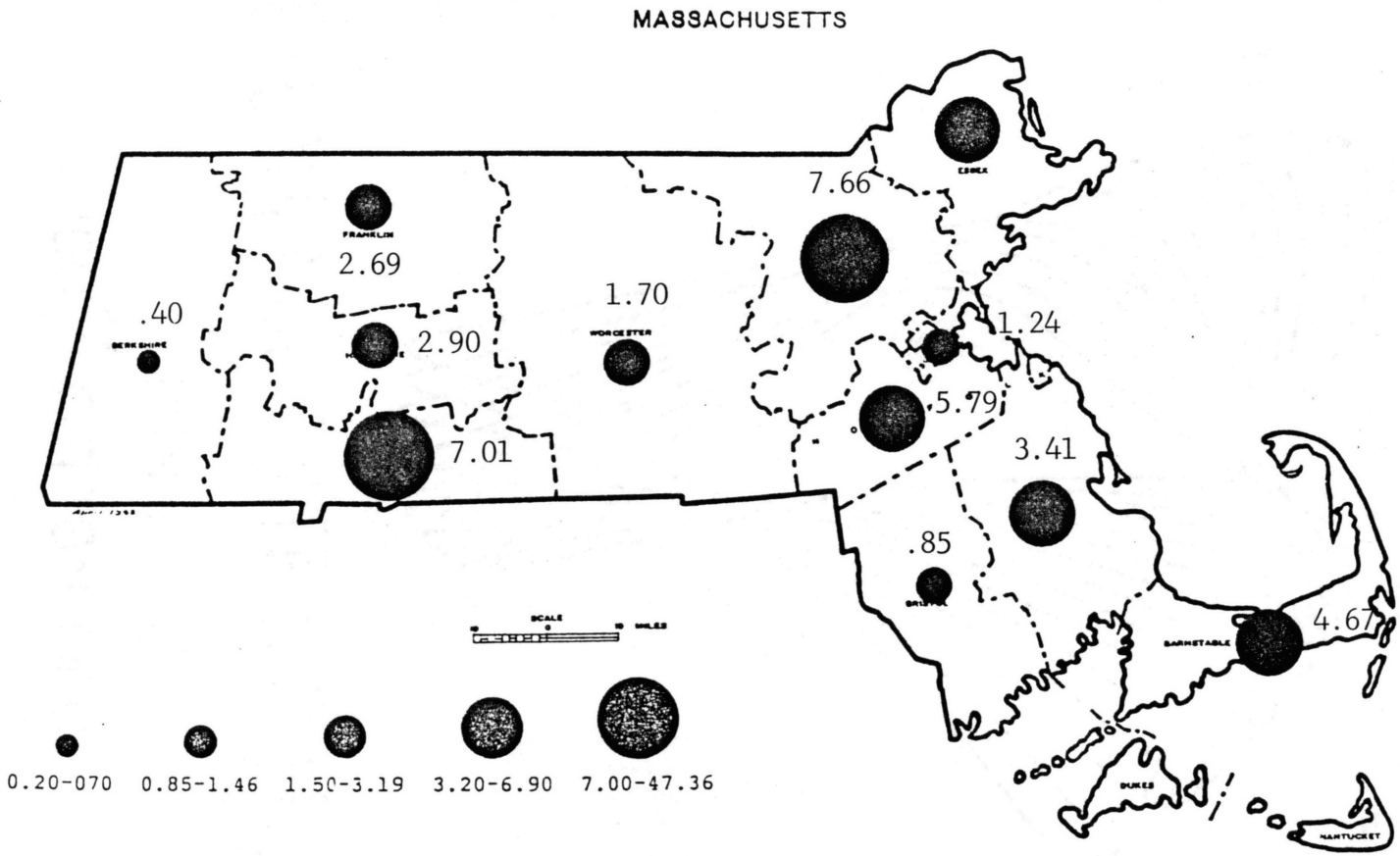
Source: 1986 NCAA Lacrosse Rosters

Figure 19. Per Capita Player Production in NY Per County: 1986



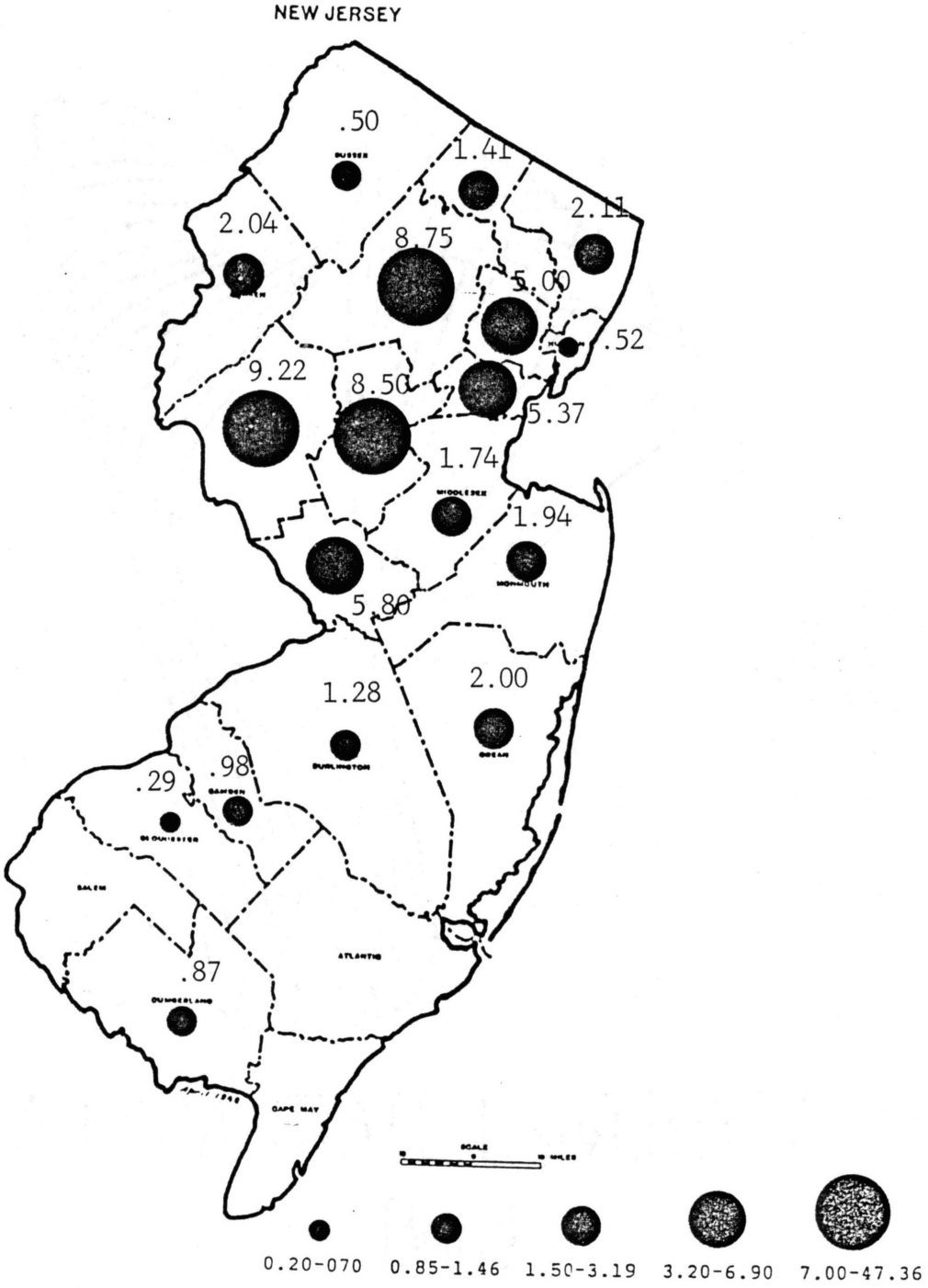
Source: 1986 NCAA Lacrosse Rosters

Figure 20. Per Capita Player Production in MD Per County: 1986



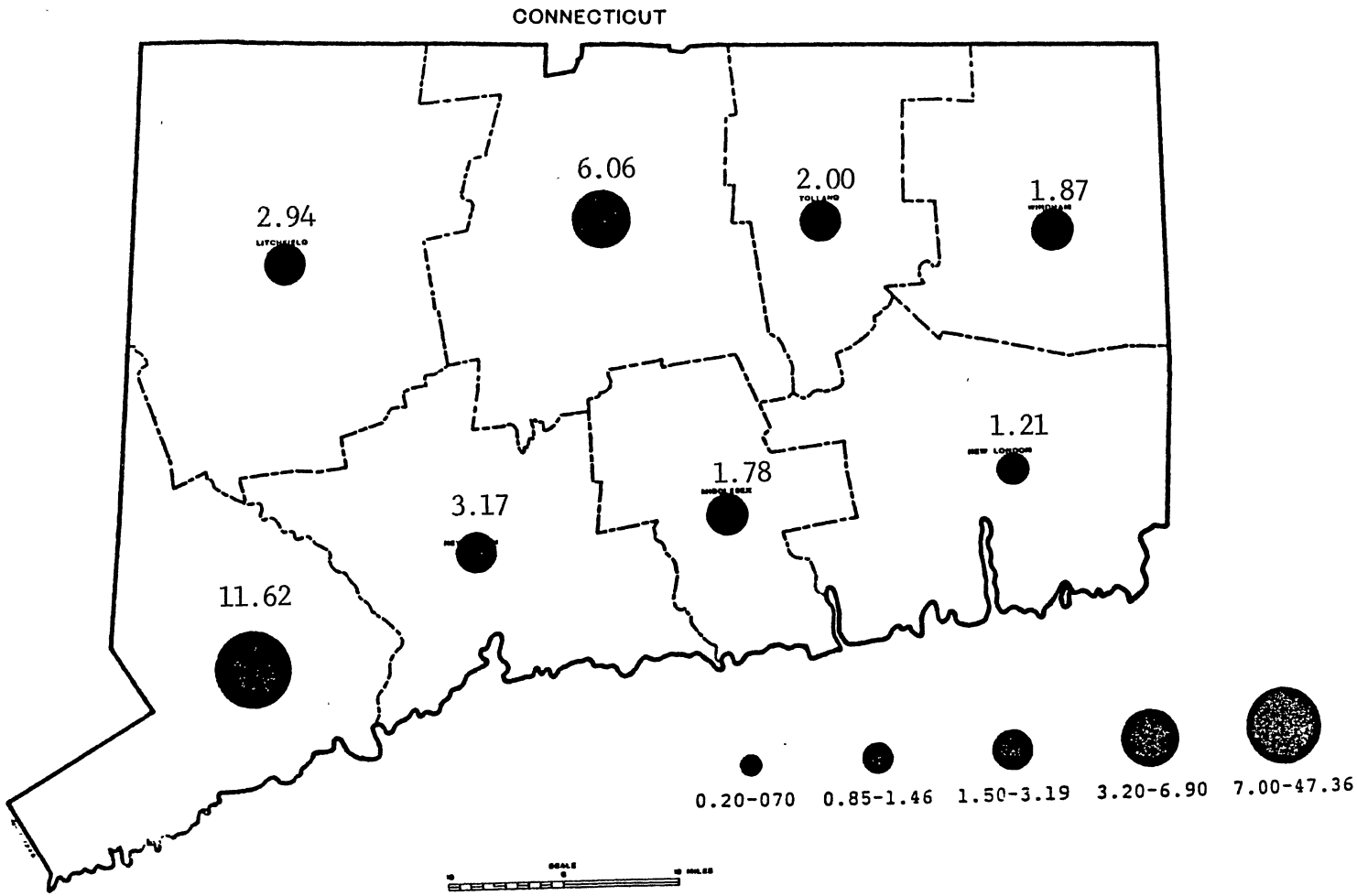
Source: 1986 NCAA Lacrosse Rosters

Figure 21. Per Capita Player Production in MA Per County: 1986



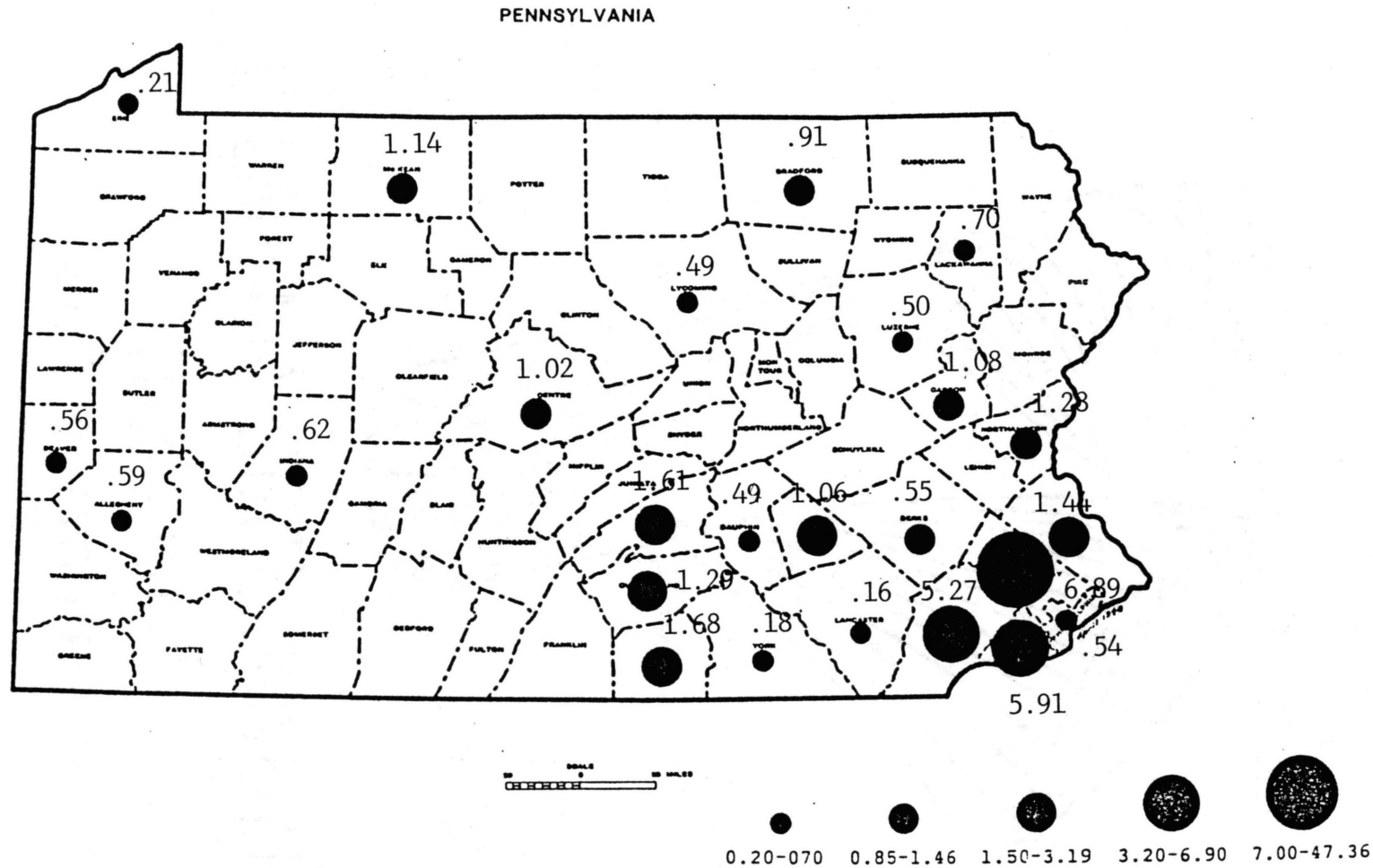
Source: 1986 NCAA Lacrosse Rosters

Figure 22. Per Capita Player Production in NJ Per County: 1986



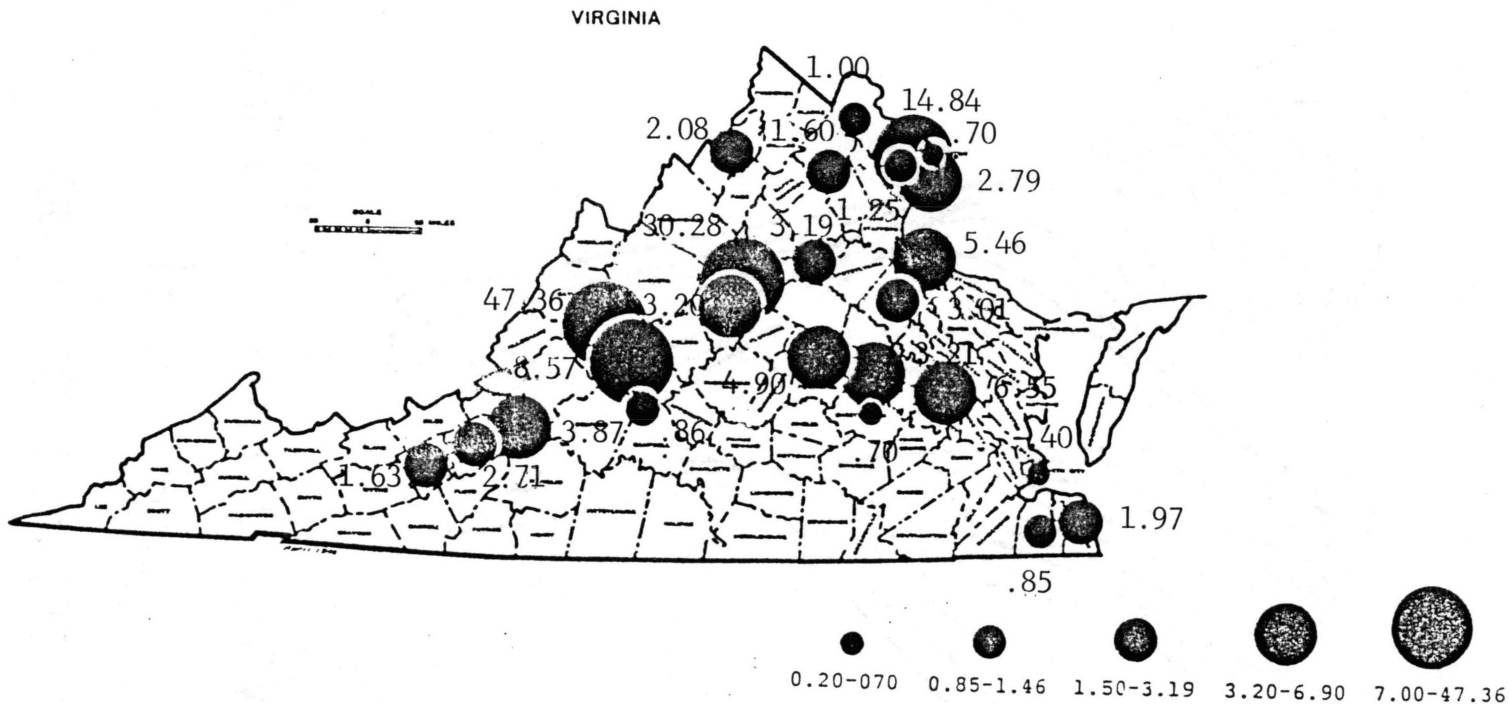
Source: 1986 NCAA Lacrosse Rosters

Figure 23. Per Capita Player Production in CT Per County: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 24. Per Capita Player Production in PA Per County: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 25. Per Capita Player Production in VA Per County: 1986

City Data

City or Town Total Player Production. At the city or town level of geographical analysis, the exact locations of lacrosse emphasis may be established. Of the top 86 locations (10 or more players) 42 are from New York. Maryland and Massachusetts have ten towns each, while Connecticut has nine (Appendix C).

Of the 42 locations in New York, 25 are on Long Island and six are are located in the Syracuse area of central New York. The top Maryland towns are in and around Baltimore, Washington, DC, and Annapolis. The New Jersey towns are located in a general corridor from New York City to Philadelphia. In Pennsylvania, the top locations are in the vicinity of Philadelphia. The Connecticut towns are located along the southeastern coast, and in the Hartford area. The state of Massachusetts has a majority of its NCAA lacrosse talent originating from towns in the suburban Boston area, and the south central section of the state.

The top 86 towns produced 1665 players, 42 percent of all NCAA players in 1986. These towns are concentrated in 32 counties, in ten states, and the District of Columbia.

Baltimore, Maryland, was the highest producer of NCAA lacrosse talent in 1986. The city of Syracuse, New York is ranked second, and Camilus of central New York, third (Table XVI). Of the top ten locations, seven are from New

TABLE XVI

RANK ORDERING OF THE TOP TOWNS AND CITIES BY TOTAL PLAYER PRODUCTION: 1986 (25 OR MORE PLAYERS)

Town	County	State	# of Players
Baltimore	Baltimore City	MD	107
Syracuse	Onondaga	NY	56
Camilus	Onondaga	NY	41
Rochester	Monroe	NY	37
Levittown	Nassau	NY	36
Yorktown Hghts.	Westchester	NY	36
Annapolis	Ann Arundel	MD	33
New Canaan	Fairfield	CT	33
Huntington	Suffolk	NY	32
Garden City	Nassau	NY	30
Wilton	Fairfield	CT	30
Manhasset	Nassau	NY	29
West Hartford	Hartford	CT	28
Towson	Baltimore	MD	27
Longmeadow	Hampden	MA	26

York. The gographical locations of the top producing towns in New York are spread throughout the state. Although the spread is not ubiquitous, lacrosse is emphasized on Long Island, in and around the cities of Syracuse and Rochester, and in Westchester County.

Secondary School Data

Secondary School Production. Information on secondary schools was collected on 55 percent of all 1986 NCAA team rosters. Data on secondary school graduates playing NCAA lacrosse may consequently be higher, but the actual rankings of the top schools may not vary significantly.

The top fifty secondary schools are concentrated in eight states. New York has 21, Maryland ten, Connecticut six, Massachusetts six, New Jersey three, Pennsylvania two, Michigan one, and Rhode Island one (Appendix D).

The top secondary school for NCAA lacrosse player production in 1986 was West Genesee High School of Onondaga County, New York, with 35 players (Table XVII). The next closest schools are Cold Spring Harbor High School, Nassau County, New York; Ward Melville High School, Suffolk County, New York; and Wilton High School, Fairfield County, Connecticut, each with 22 players in the NCAA.

Private preparatory schools, which act as diffusing agents for the sport, play an integral role in the initial

TABLE XVII

RANK ORDERING OF THE TOP SECONDARY SCHOOLS BY TOTAL PLAYER PRODUCTION: 1986 (15 OR MORE PLAYERS)

Secondary School
West Genesee High School, Onondaga Co. NY (35)
Cold Spring Harbor High School, Nassau Co. NY (22)
Ward Melville High School, Suffolk Co. NY (22)
Wilton High School, Fairfield Co. CT (22)
Calvert Hall, Baltimore City Co. MD (21)
Garden City High School, Nassau Co. NY (21)
St. Mary's, Baltimore City Co. MD (21)
Gillman School, Baltimore City Co. MD (20)
New Canaan High School, Fairfield Co. CT (20)
Farmingdale High School, Nassau Co. NY (19)
Loyola - Blakefield, Baltimore Co. MD (19)
Yorktown High School, Westchester Co. NY (19)
Longmeadow High School, Hampden Co. MA (18)
Chaminade High School, Nassau Co. NY (17)
Summit High School, Union Co. NJ (17)
Concord - Carlisle High School, Middlesex Co. MA (16)
Phillips Academy, Essex Co. MA (15)
St. Anthony's, Suffolk Co. NY (15)

diffusion and production of players. The perception of lacrosse as an elite sport for the affluent is, in fact, partially true. Excluding the state of New York, 72 percent of the top 50 secondary schools are private. Including New York, 48 percent are private. Of the top 18 secondary schools, 39 percent are private. Excluding New York, 60 percent of the secondary schools are private.

New York state, which produced 39 percent of all the 1986 NCAA players, has done so through the public school systems. In Maryland, seven of its top ten secondary schools are private. Since 1975, Maryland has stabilized its player production and reduced its overall contribution to the national total. The continued growth of lacrosse depends on the opportunity to play at the secondary school level. The public school systems in New York, Massachusetts, New Jersey, and Connecticut will play a vital role in the future growth of intercollegiate lacrosse in the United States.

The Migration of Secondary School Lacrosse Talent

State Export and Surplus/Deficit Rates

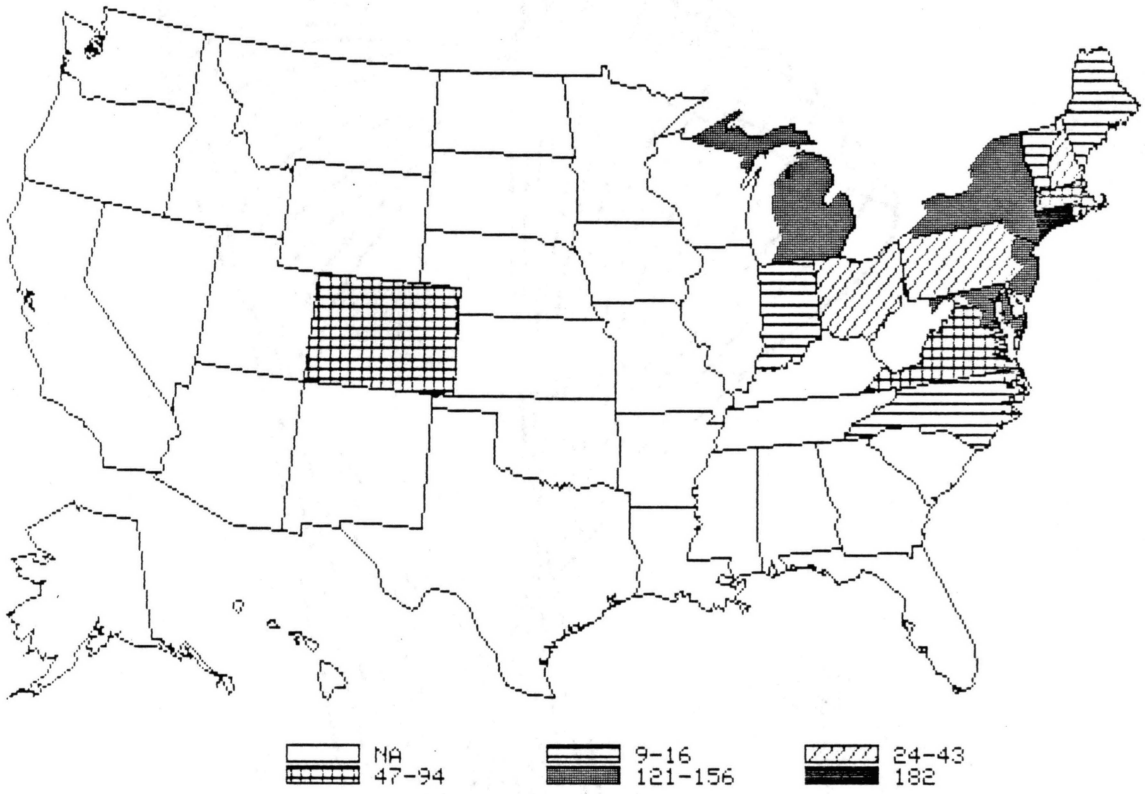
There is a considerable amount of mobility of lacrosse talent from high school to college. Of the top 11 states in total production, which incorporates 3725 players or 95 percent of the total, over half, 54 percent, migrate out of their home state to play NCAA

lacrosse (Table XVIII). Rhode Island and Connecticut export the highest percentage of players at 88 percent and 86 percent repectively. Ohio and Virginia are at the other extreme. A majority of their players remain in state. Ohio has an export rate of 25 percent and Virginia 35 percent.

There is only a slight relationship between the disposition to migrate and the ability of a state to produce players to meet its needs (Figure 26 and Table XIX). When a state has a surplus of players, some players must migrate out of state if they wish to participate in lacrosse at the NCAA level of competition. Beyond this undeniable fact, collegiate lacrosse players move freely throughout the current NCAA lacrosse regions in the United States.

Rhode Island produces 69 percent of its own needs, yet 88 percent of its players migrate out of state. New Hampshire produces 43 percent of its needs, but 67 percent of its players migrate to out-of-state schools. Connecticut has a surplus of players, producing 182 percent of its needs. In fact, more than half of its players, 86 percent, migrate to other states.

NCAA lacrosse teams survive in deficit areas due to the surplus of lacrosse talent being generated by other states. Connecticut, New York, New Jersey, and Maryland combined have a surplus of 982 players. Beyond meeting the needs of their own states, these top four surplus states



Source: 1986 NCAA Lacrosse Rosters

Figure 26. Surplus and Deficit Areas of Players Produced By Percent Production which Meets Demand: 1986

TABLE XVIII

THE LEADING EXPORTERS OF HIGH SCHOOL LACROSSE TALENT TO NCAA COLLEGES

Rank	State	Total Production	Exports	Percent Exported
1	RI	48	42	88
2	CT	316	272	86
3	CO	38	28	74
4	NH	46	31	67
5	NJ	381	244	64
6	MD	507	306	60
7	MA	429	220	51
8	NY	1546	770	50
9	PA	245	120	49
10	VA	101	35	35
11	OH	68	17	25
	Total	3725	2002	54

TABLE XIX

STATE SURPLUS AND DEFICITS OF NCAA LACROSSE PLAYERS

State	Supply	Demand	% of Demand Met
Connecticut	316	174	182
New York	1546	988	156
New Jersey	381	257	148
Maryland	507	349	145
Michigan	34	28	121
Massachusetts	429	454	94
Rhode Island	48	70	69
Colorado	38	77	49
Virginia	101	213	47
New Hampshire	46	108	43
Pennsylvania	245	566	43
Dist. of Col.	10	28	36
Ohio	68	245	28
Delaware	7	29	24
Maine	14	90	16
Vermont	17	122	14
North Carolina	14	129	11
Indiana	3	32	9

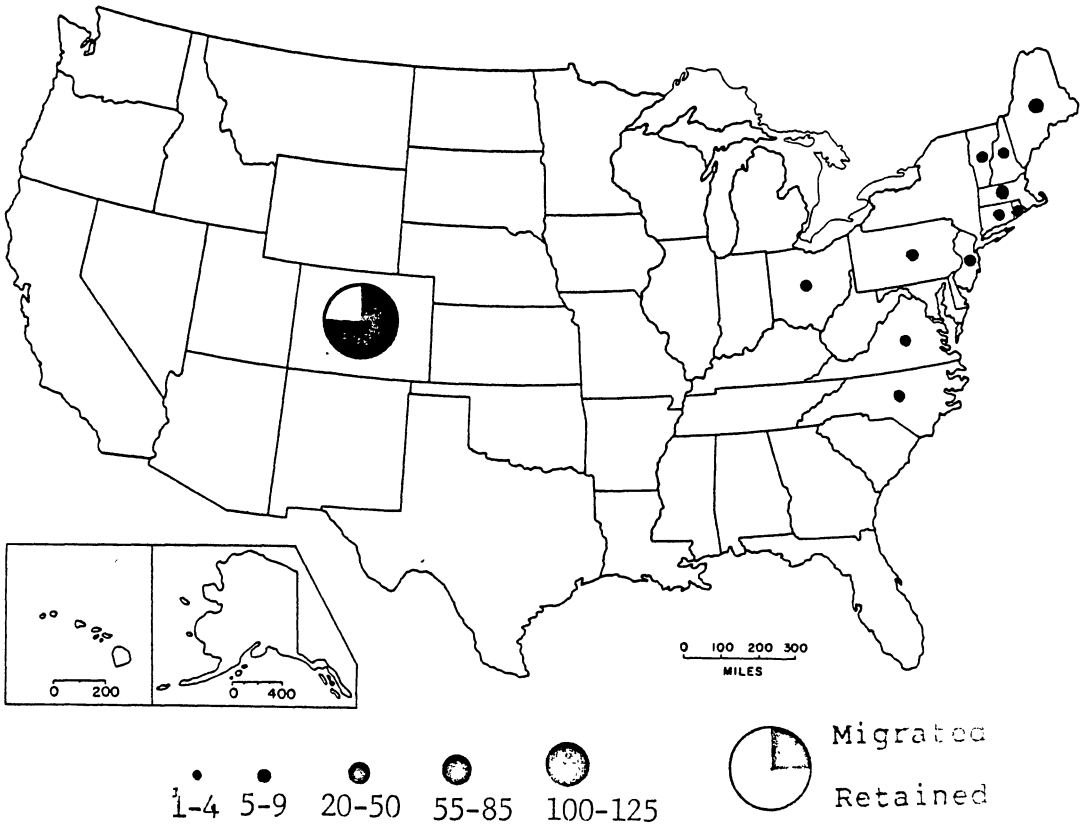
can meet the demand of nine additional states and the District of Columbia. The 1986 NCAA division I lacrosse champion, the University of North Carolina, is in a state which produces only 11 percent of its own needs. The 1986 runner-up, the University of Virginia, relies on surplus states for a majority of its players.

Migration Characteristics Of The Top Producing States

The top 11 producers of NCAA lacrosse talent have different migration patterns. Tables XVIII and XIX, mentioned above, indicate the number of players that migrate out of state, and the inbalance that exists between supply and demand. Figures 27-37 illustrate the 1986 migration of 95 percent of all NCAA players. At least two geographical observations can be made: 1. political boundaries are not barriers in the migratory behavior of lacrosse players, and 2. regional migration between New England and the south (DE, DC, MD, NC, VA) is limited.

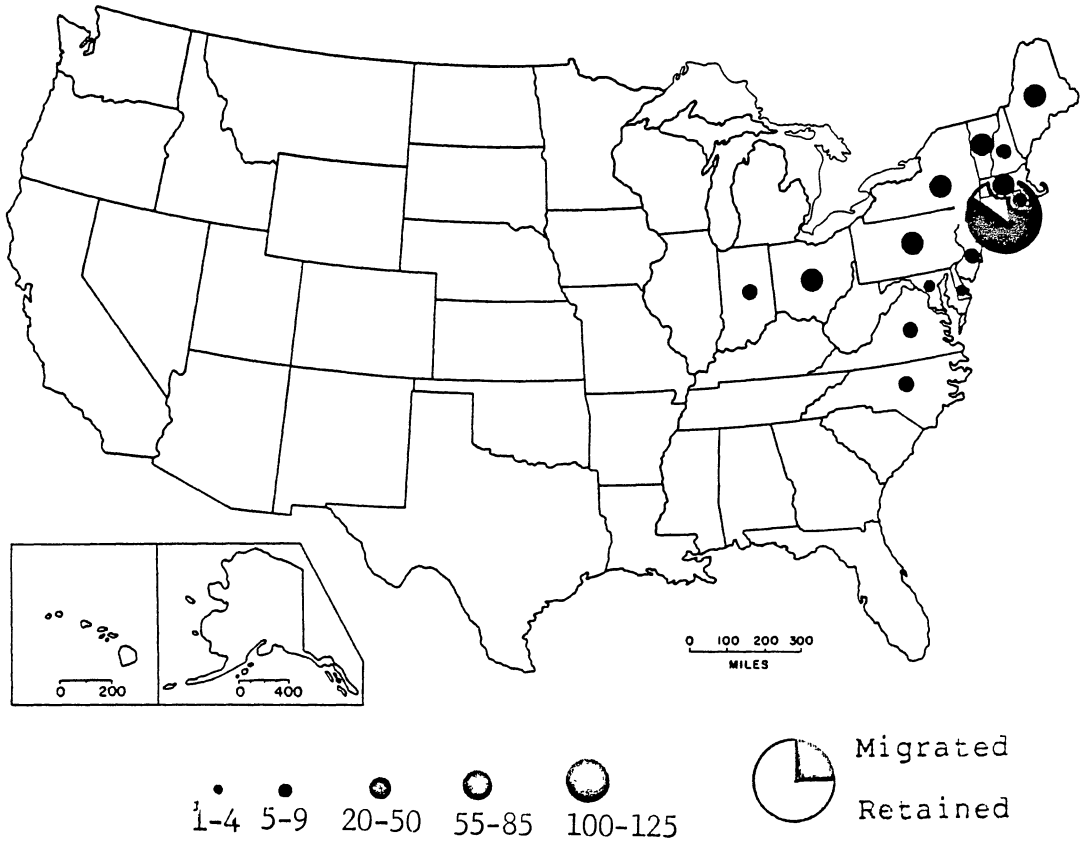
Lacrosse players from Colorado migrate more to Maine than to any other state (Figure 27). New England, in general, is the destination of 50 percent of Colorado's lacrosse talent. Only ten percent chose or were given the opportunity to play NCAA lacrosse in the southern states which have NCAA programs.

The migration of Connecticut players remained relatively in the north (Figure 28). A total of 37 percent migrated within the New England region. There was a



Source: 1986 NCAA Lacrosse Rosters

Figure 27. Migration of Lacrosse Players From CO: 1986



Source: 1986 NCAA Lacrosse Rosters

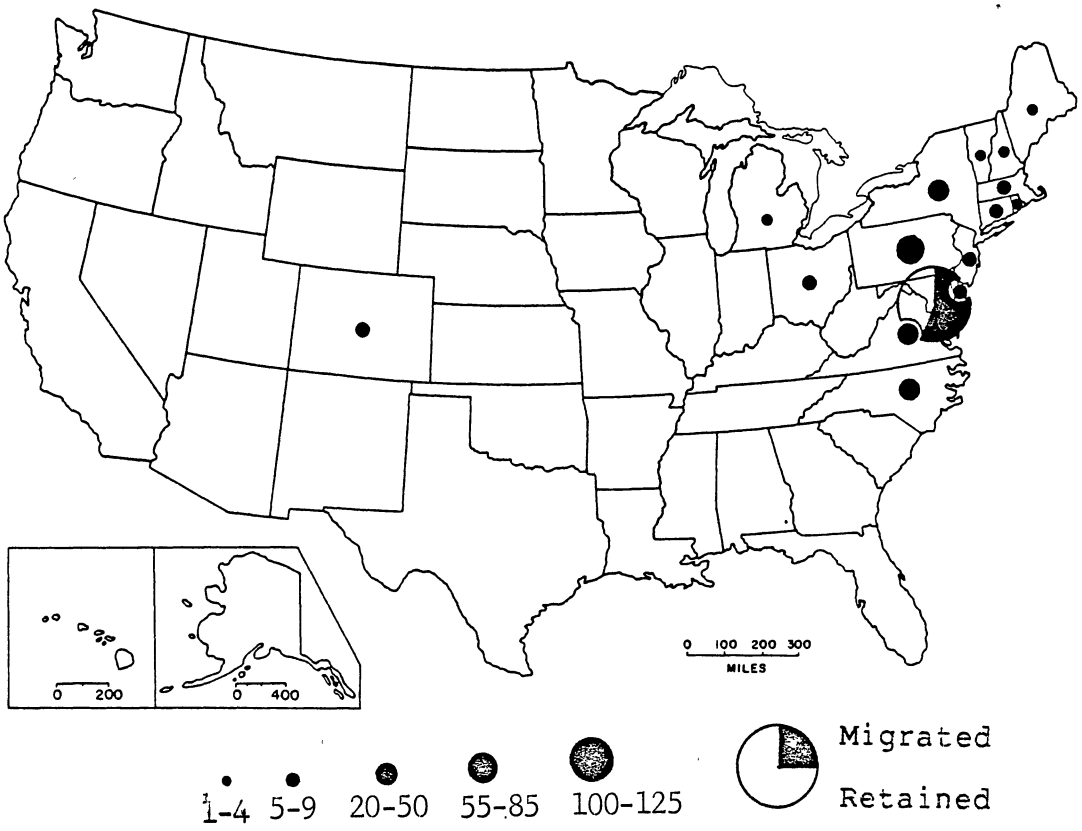
Figure 28. Migration of Lacrosse Players From CT: 1986

movement of 17 percent to the west, specifically to Pennsylvania, Ohio, and Indiana. Another significant transfer of Connecticut players is between Connecticut and its neighboring state New York. With a surplus of players, 15 percent migrated to New York for the 1986 season. Only ten percent go south to play NCAA lacrosse.

Maryland's players migrate more to Pennsylvania than to any other state (Figure 29). The proximity and supply of NCAA playing opportunities, resulted in 14 percent of Maryland's players taking their skills to Pennsylvania. While 20 percent migrate within the south to either North Carolina, Virginia, or Delaware, only seven percent migrate to the entire New England region. Finally, four percent migrate to New York.

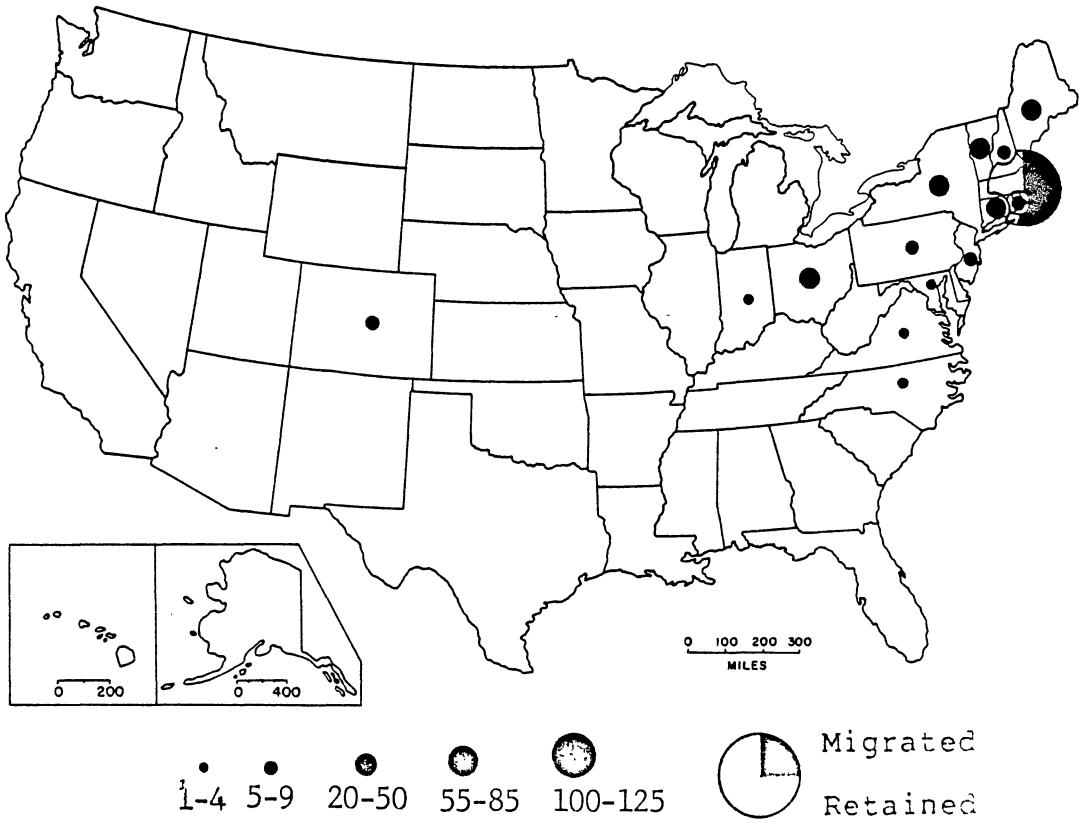
In Massachusetts, 29 percent of the players migrate within the New England area (Figure 30). Massachusetts natives dominate play in the New England region. There are more Massachusetts players in Maine, New Hampshire, Vermont, and Massachusetts than any other state's players. Two non-New England states are destinations for Massachusetts players. New York, and Ohio receive seven percent, and five percent of their players respectively. Similar to other New England states, only one percent of its players migrate south.

The per capita opportunity to play NCAA lacrosse in New Hampshire is the second highest in the nation, yet 67 percent of its players leave the state (Figure 31). New



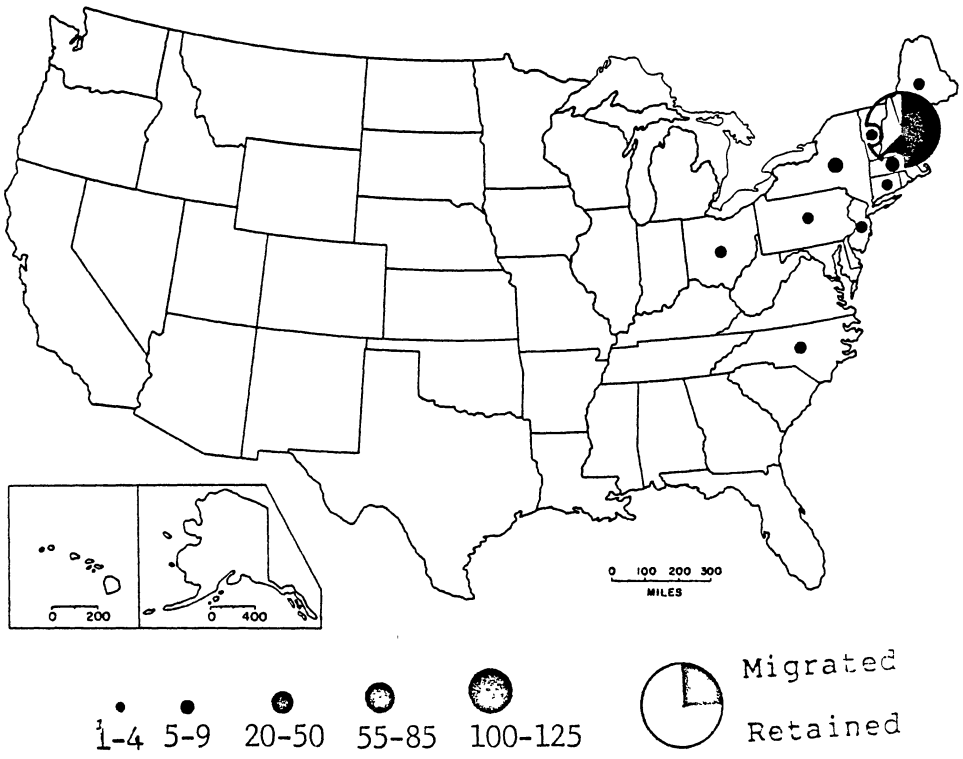
Source: 1986 NCAA Lacrosse Rosters

Figure 29. Migration of Lacrosse Players From MD: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 30. Migration of Larosse Players From MA: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 31. Migration of Lacrosse Players From NH: 1986

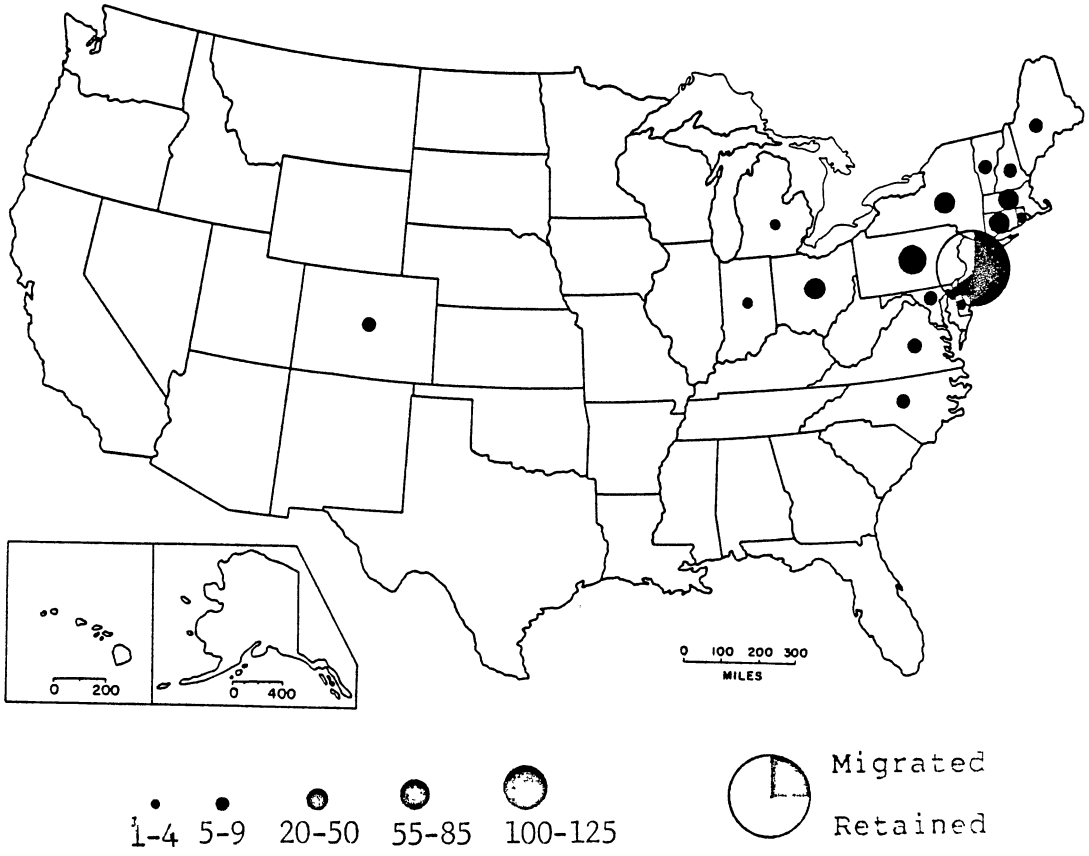
England retains 37 percent of New Hampshire's lacrosse talent. Only two players take their talents south.

New Jersey is geographically located between the north and south lacrosse regions. A total of 39 percent of New Jersey's players migrate north, and west to either Pennsylvania, New York, or Connecticut (Figure 32). The tendency is for players in New Jersey to go north rather than south where only ten percent of the state's NCAA talent flows.

New York players are present on 122 of the 128 NCAA lacrosse teams surveyed. Of the teams surveyed in 17 states, New Yorkers have more players in seven states than any other state (Table XX). There are nine states in which New York contributes the second highest number of players, and one in which they are third in number of players.

Intercollegiate lacrosse in the United States is strongly influenced by the production and migration of players from New York state. Nearly the same amount of players migrate to New England (14 percent) as to the south (13 percent) (Figure 33). The state aquiring the most players from New York is Pennsylvania, with eight percent, followed closely by Massachusetts at seven percent. Maryland is the destination of five percent of New York's talent. New Jersey, Ohio, and Virginia each have four percent of New York's players.

Ohio and Virginia are two exceptions among the top



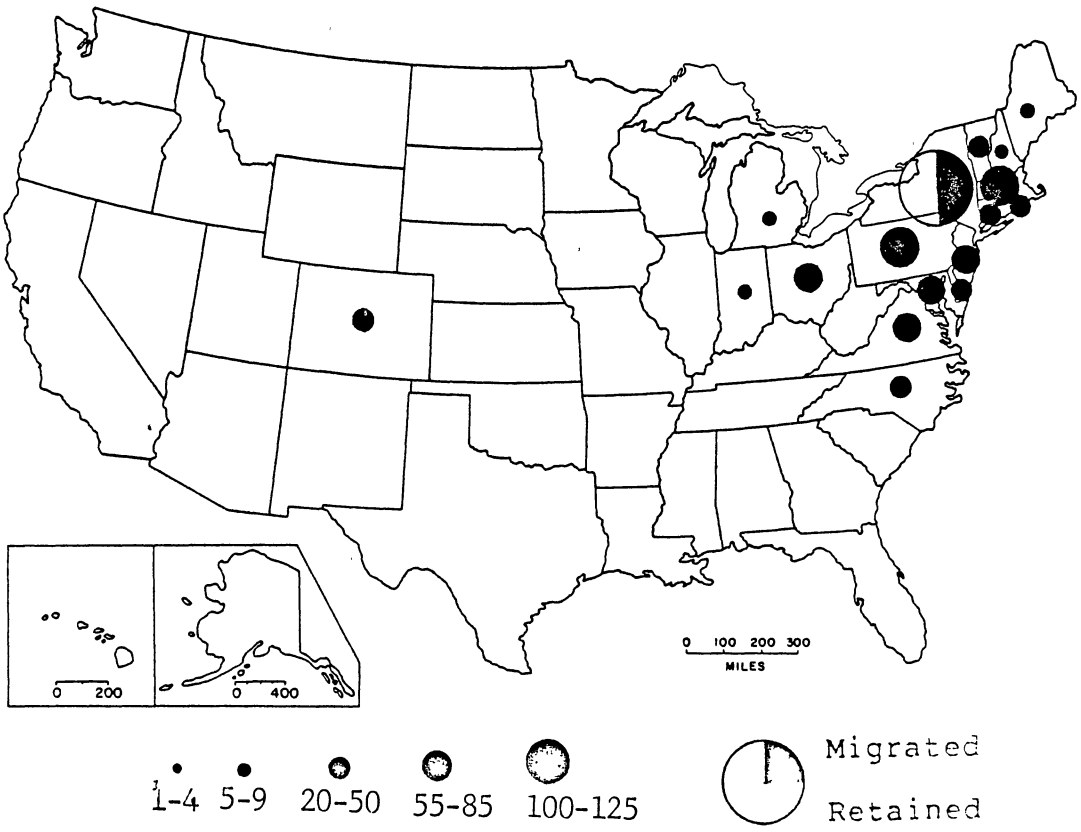
Source: 1986 NCAA Lacrosse Rosters

Figure 32. Migration of Lacrosse Players From NJ: 1986

TABLE XX

RANKING DISTRIBUTION OF PLAYERS IN EACH STATE HAVING NCAA LACROSSE: 1986

State	1st	2nd	3rd
Colorado	New York	Colorado	Maryland
Connecticut	Connecticut	New York	Massachstt's
Delaware	New York	Maryland	Connecticut
Dist. of Col.	New York	Connecticut	New Jersey
Indiana	New York	Connecticut	Massachstt's
Maine	Massachstt's	Connecticut	New York
Maryland	Maryland	New York	New Jersey
Massachstt's	Massachstt's	New York	Connecticut
Michigan	Michigan	New York	Ohio
New Hampshire	Massachstt's	New York	Connecticut
New Jersey	New Jersey	New York	Pennsylvania
New York	New York	Pennsylvania	Massachstt's
No. Carolina	Maryland	New York	Pennsylvania
Ohio	New York	Ohio	Massachstt's
Pennsylvania	Pennsylvania	New York	Maryland
Rhode Island	New York	Connecticut	Massachstt's
Vermont	Massachstt's	New York	Connecticut
Virginia	New York	Virginia	Maryland



Source: 1986 NCAA Lacrosse Rosters

Figure 33. Migration of Lacrosse Players From NY: 1986

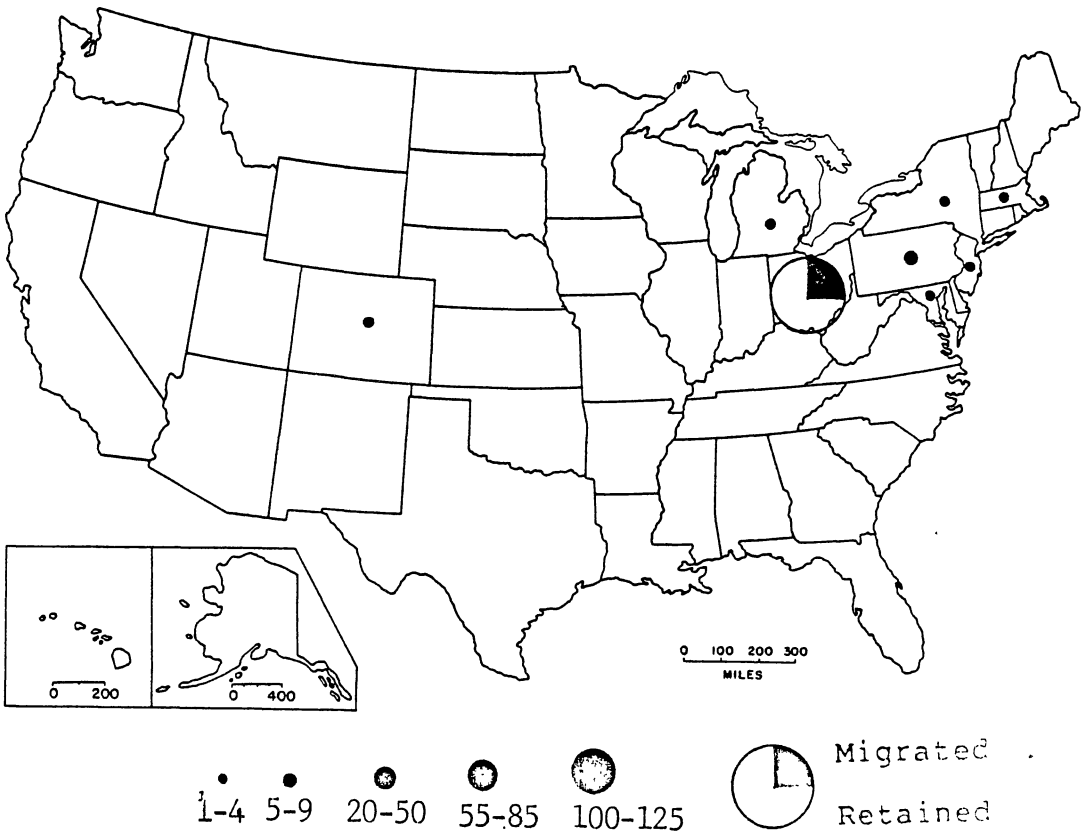
producing states where the players tend to stay in state. Of all Ohio's players, a minority migrate to Pennsylvania and New York (Figure 34). Virginia, which portrays the same exportation characteristics as Ohio, exports 35 percent of its players. Of all players, 11 percent go to neighboring southern states, nine percent to New England, and six percent to Pennsylvania (Figure 35).

Pennsylvania exists in the transition zone between north and south regions along with New Jersey. A total of 18 percent of Pennsylvania's players migrate to New Jersey (Figure 36). Virginia and North Carolina acquire a majority of Pennsylvania's southern migration, at 16 percent of its players.

In Rhode Island, 56 percent of the state's lacrosse talent migrates to neighboring states in the New England region (Figure 37). Nearly 20 percent of the players head west to Pennsylvania and Ohio to play NCAA lacrosse.

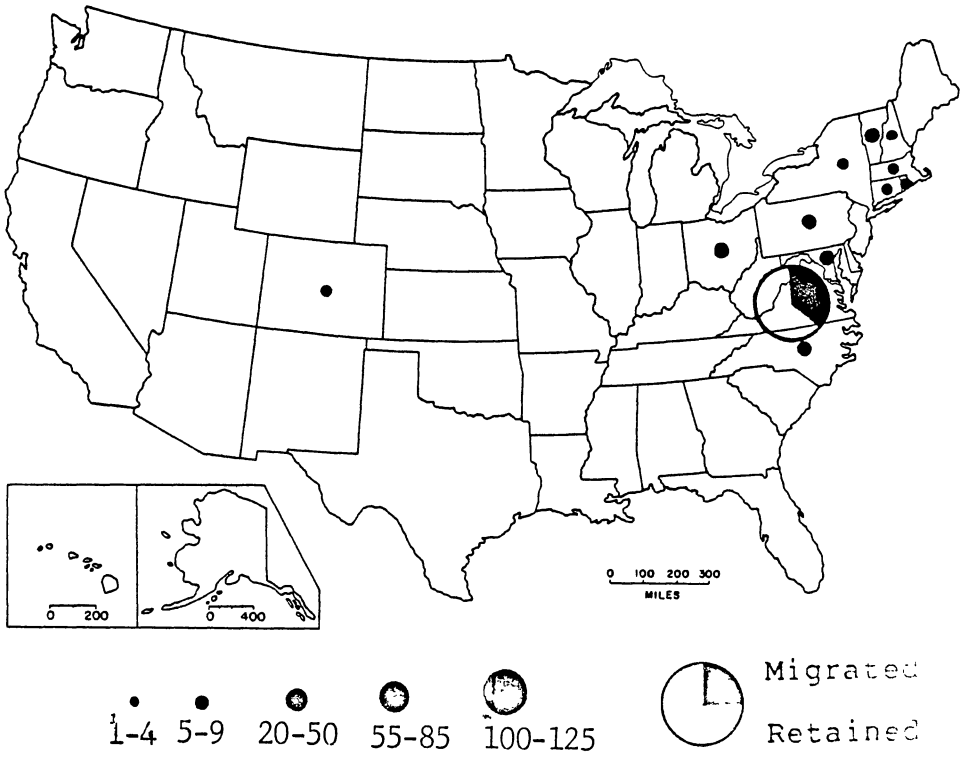
Immigration Rates By Region

The New England states comprise 56 percent of the players in the New England Region. New York players comprise 23 percent of all players in New England (Figure 38). New Jersey and Pennsylvania constitute ten percent, and the southern states five percent. There are 33 states and the District of Columbia represented in the New England region. New England has the most diverse representation of states out of the four regions.



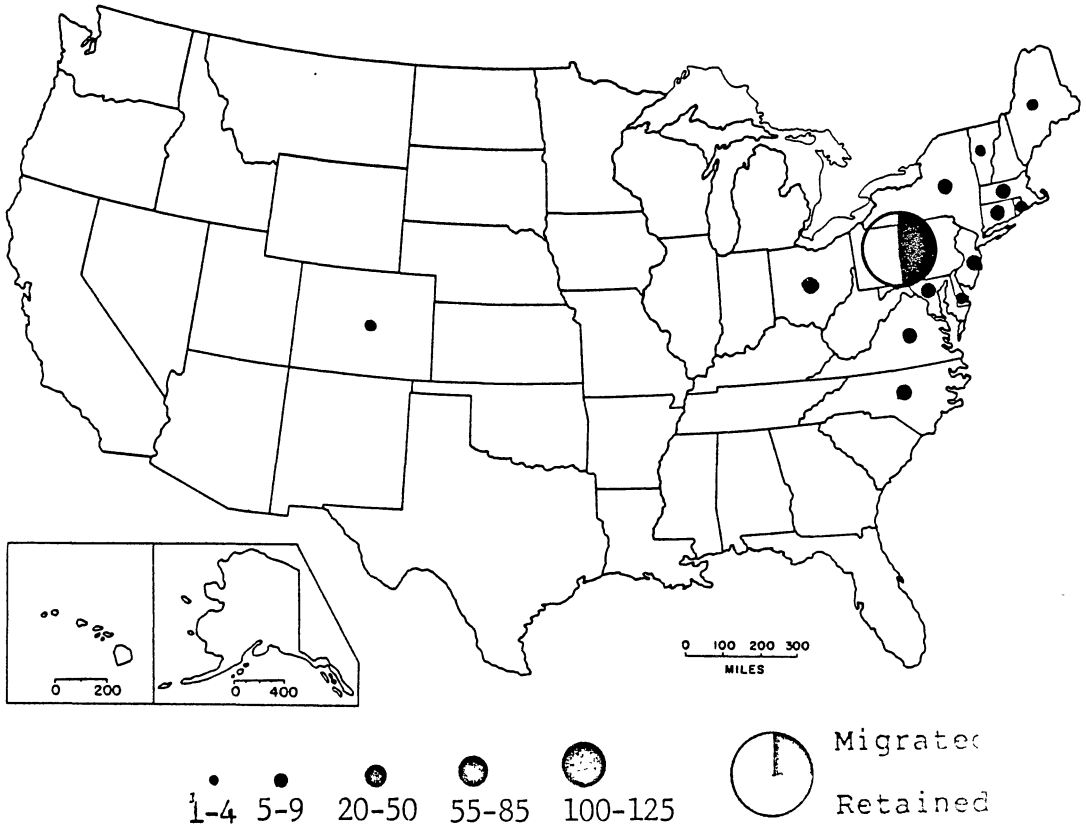
Source: 1986 NCAA Lacrosse Rosters

Figure 34. Migration of Lacrosse Players From OH: 1986



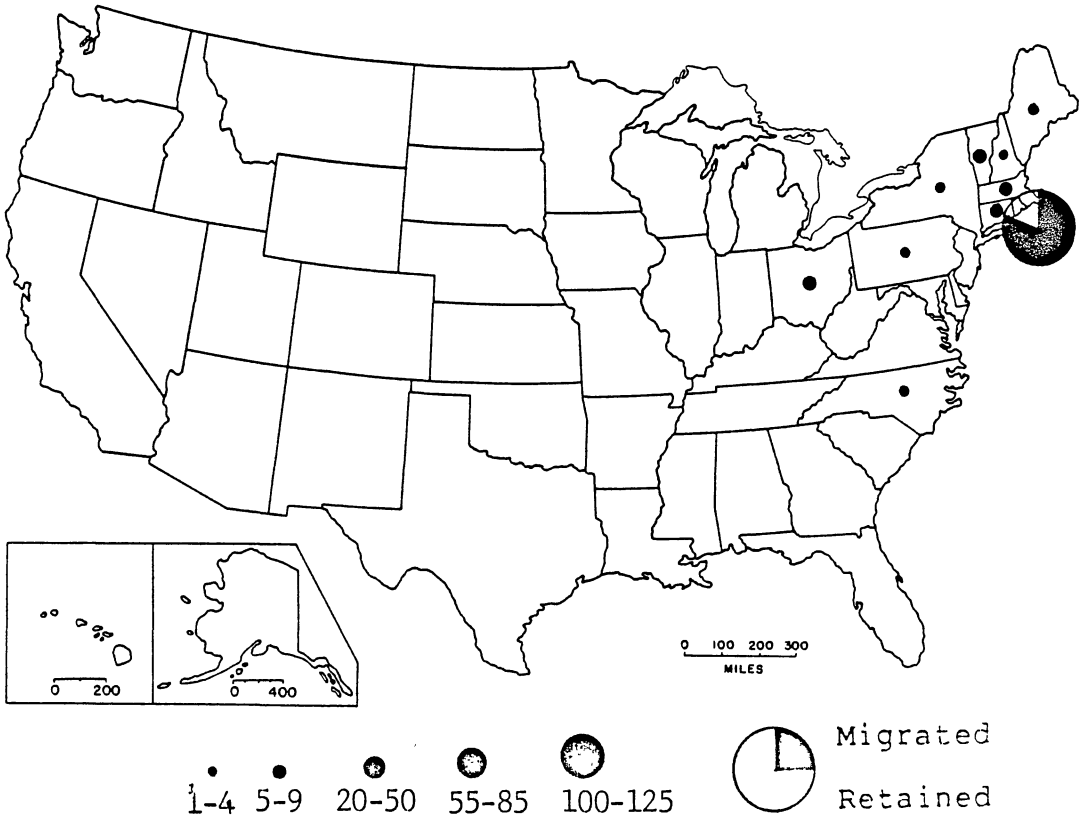
Source: 1986 NCAA Lacrosse Rosters

Figure 35. Migration of Lacrosse Players From VA: 1986



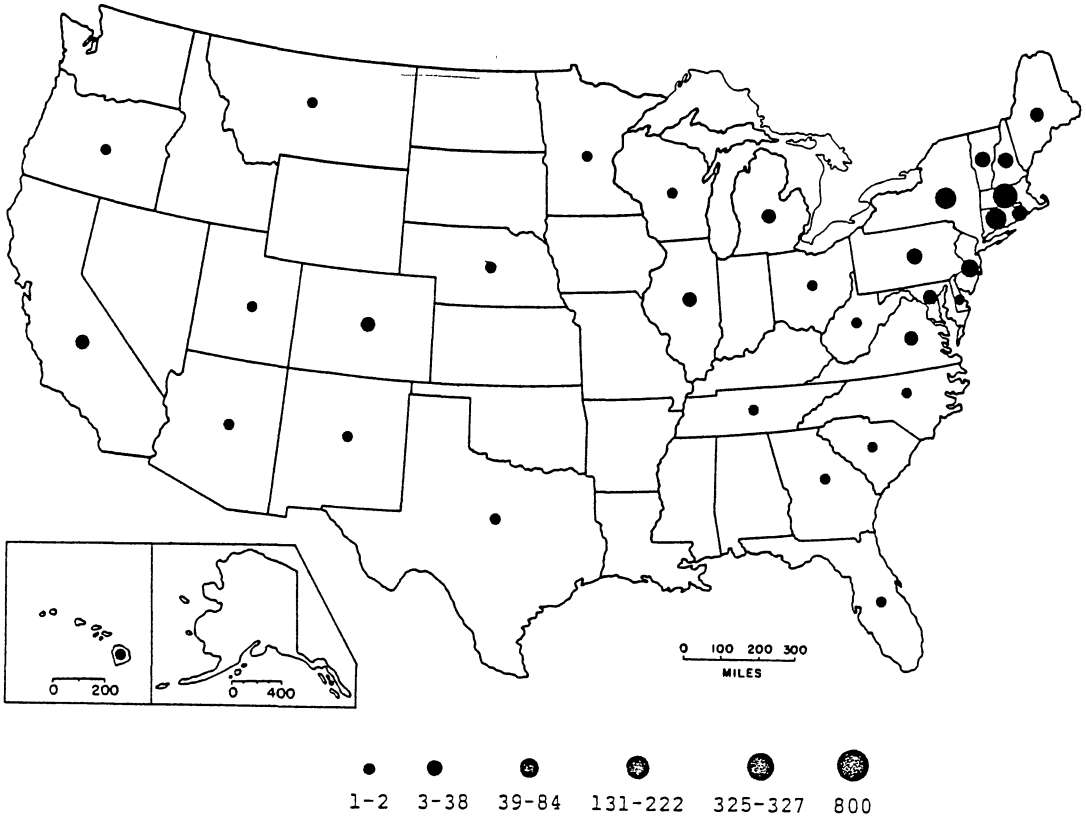
Source: 1986 NCAA Lacrosse Rosters

Figure 36. Migration of Lacrosse Players From PA: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 37. Migration of Lacrosse Players From RI: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 38. Migration of Lacrosse Players to New England: 1986

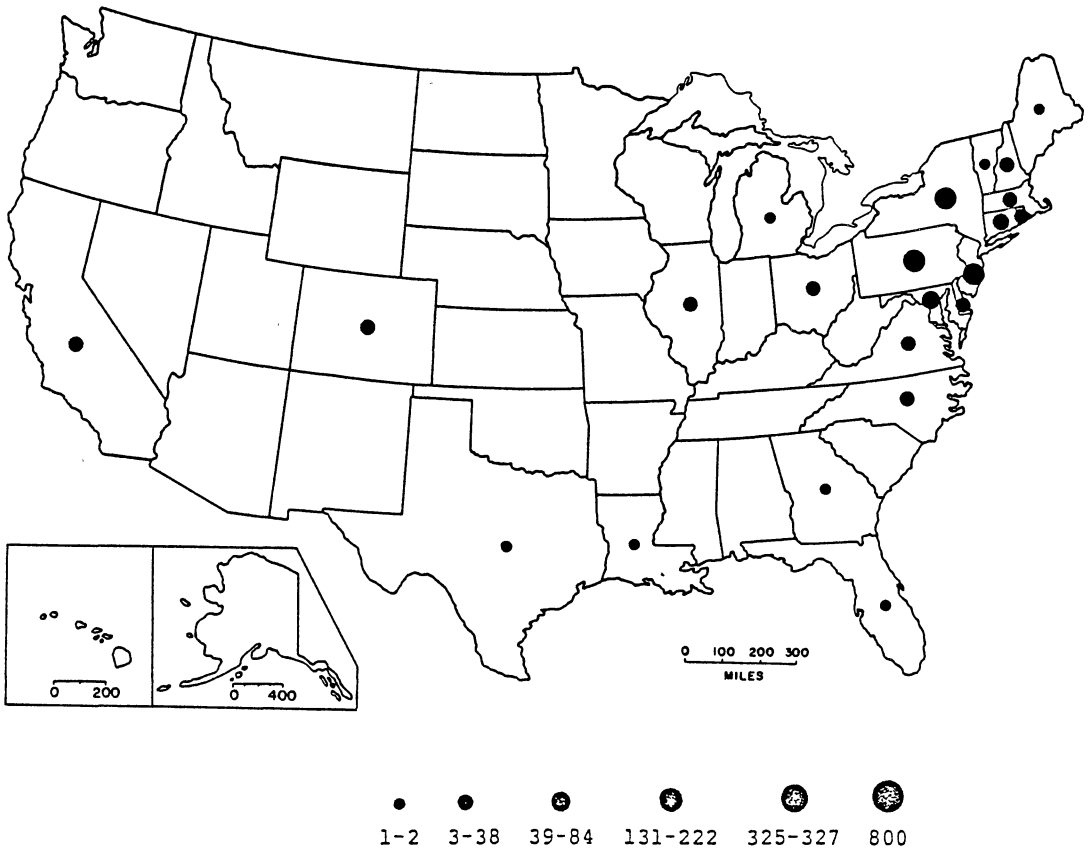
The New Jersey and Pennsylvania region consists of 45 percent native players. The remainder of the NCAA players in this region are mainly from New York (26 percent), the south (14 percent), and New England (11 percent) (Figure 39). Pennsylvania receives a majority of this region's southern immigration.

Native New Yorkers comprise 78 percent of all players playing NCAA lacrosse in the New York state. Three states lead all others in immigration to New York: Connecticut, New Jersey, and Massachusetts provide 12 percent of the players in New York (Figure 40). The southern states represent three percent of the players in the state.

Immigration to the southern region is dominated by New York which accounts for 28 percent of the players (Figure 41). Native players constitute 54 percent of all players. The least number of total states (nine, and the District of Columbia) are represented in the south, the reverse of New England which has the highest diversity of states represented in the region.

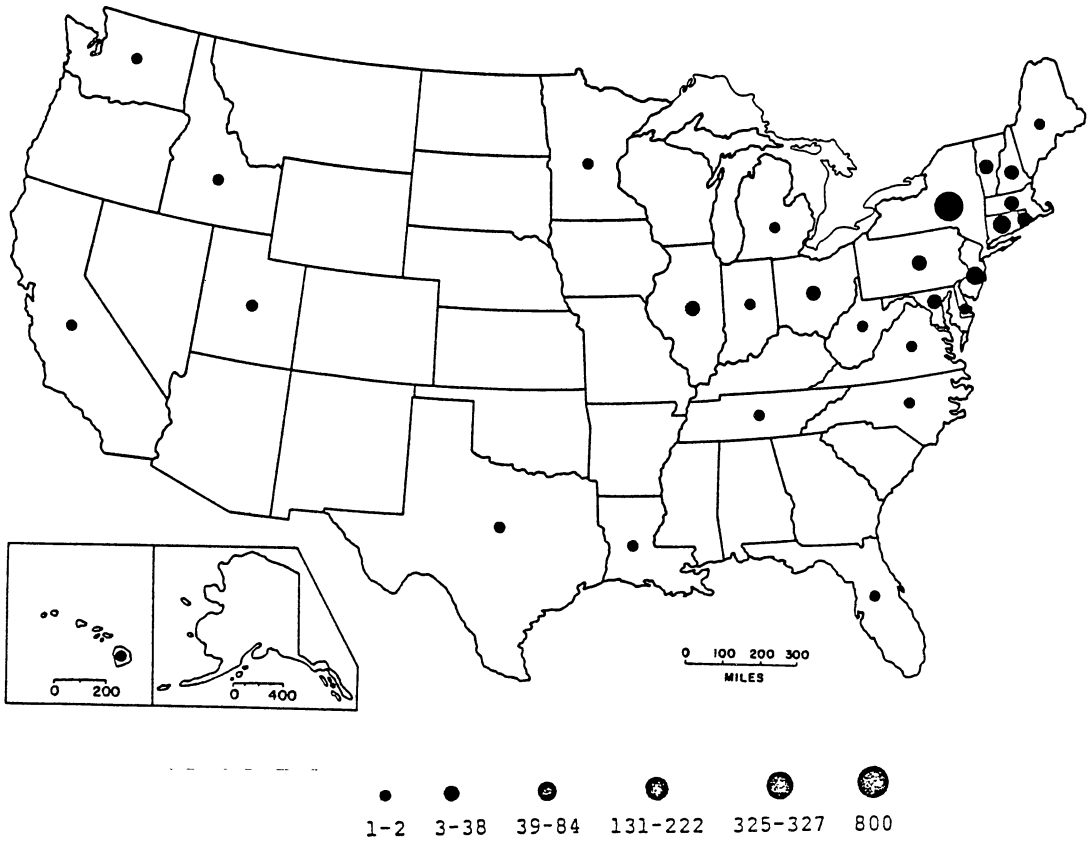
Top 10 Recruiting Patterns

Recruiting patterns of the top ten colleges indicate where the top lacrosse talent in the country is coming from. The top teams rely consistently on five geographic areas in particular. The top four teams of 1986 were the University of North Carolina, the University of Virginia, Syracuse University, and Johns Hopkins University. Data



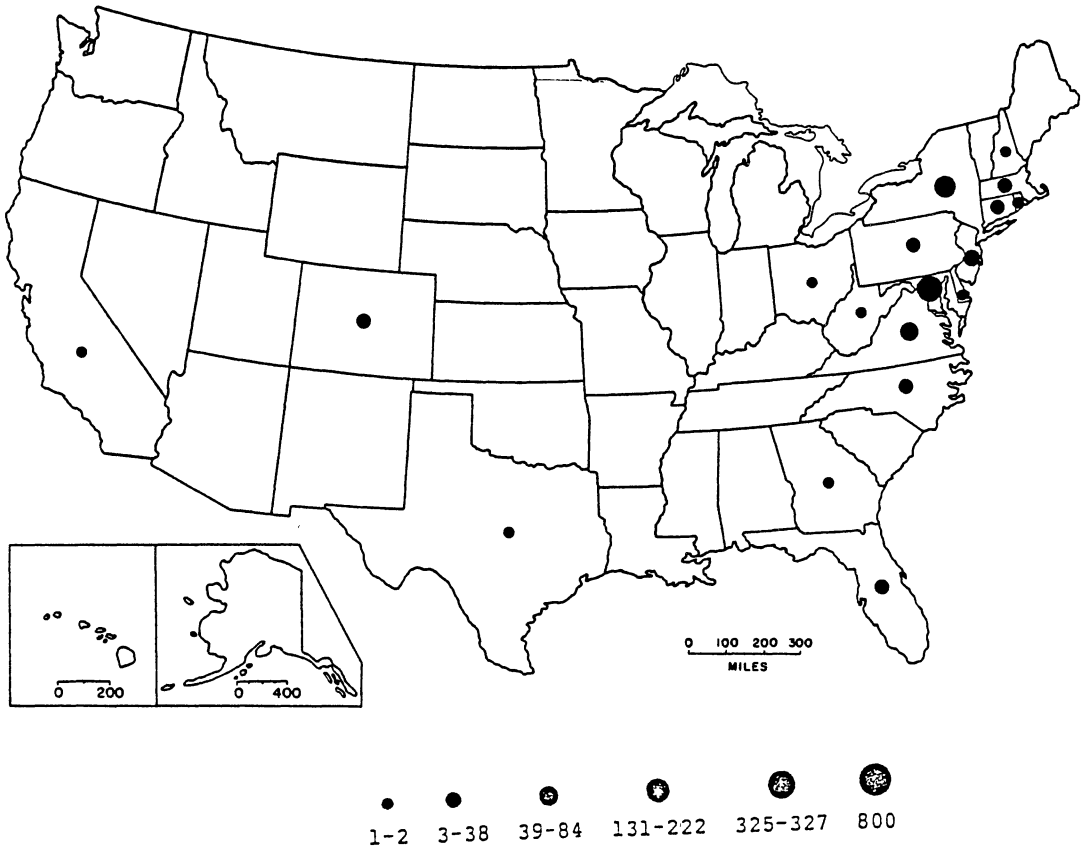
Source: 1986 NCAA Lacrosse Rosters

Figure 39. Migration of Lacrosse Players to PA/NJ: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 40. Migration of Lacrosse Players to NY: 1986



Source: 1986 NCAA Lacrosse Rosters

Figure 41. Migration of Lacrosse Players to the South: 1986

combined on the top four teams of 1986 illustrate this fact (Figure 42). These top five areas, and their respective rank of importance (by number of players) are:

1. Baltimore, MD (45)
2. Long Island, NY (36)
3. Syracuse, NY (17)
4. Westchester, NY (10)
5. Philadelphia, PA (7)

The Baltimore area produces the most players for the top four schools. New York state contains three of the top five geographic locations. Combined, there are 63 players from New York. The Philadelphia area is well-represented by the top performing colleges of 1986.

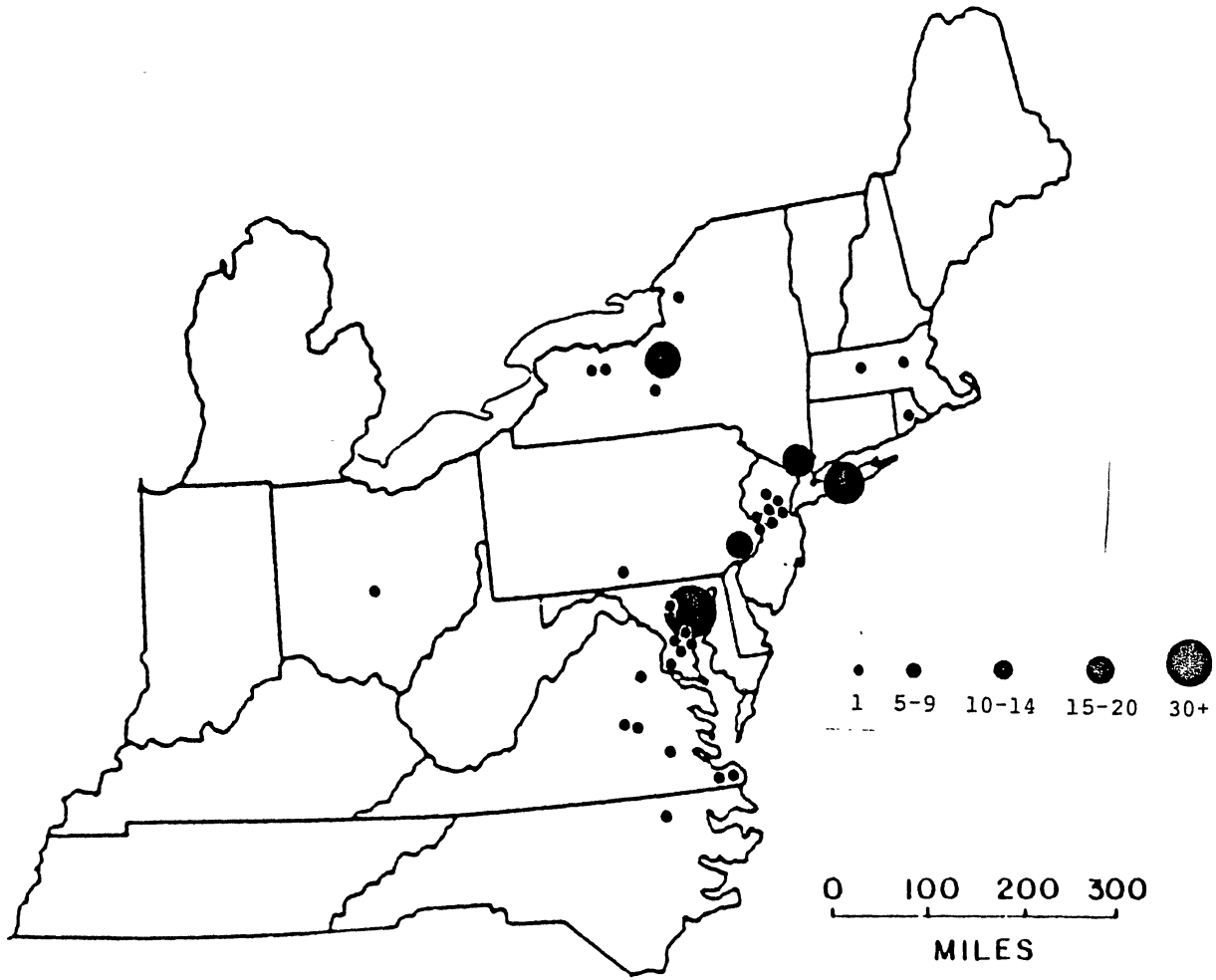
The top ten teams of 1986 have variations in recruiting, generally depending on geographic location of the college (Figures 43-52). Migration to top ten colleges is less constrained by state boundaries then the overall migration of NCAA talent.

Several observations can be made about the recruiting patterns of the top ten teams. They are as follows:

36 percent of the top ten teams' players are from Long Island, 18 percent are from the Baltimore area.

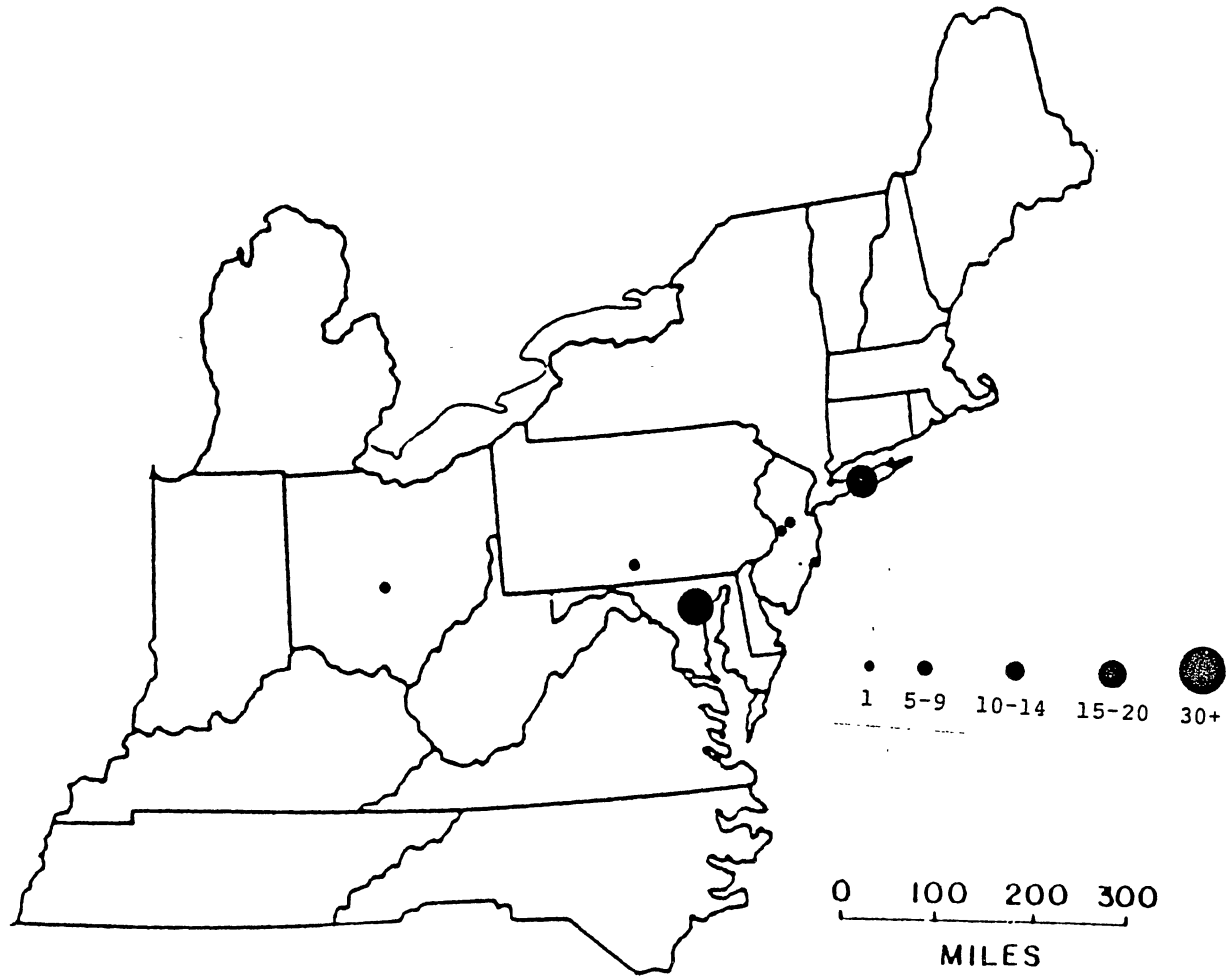
Johns Hopkins, North Carolina, Navy, and the University of Virginia rely on a Long Island/Maryland mixture of players.

The University of Maryland recruits from central New York, Long Island, Annapolis, and Baltimore.



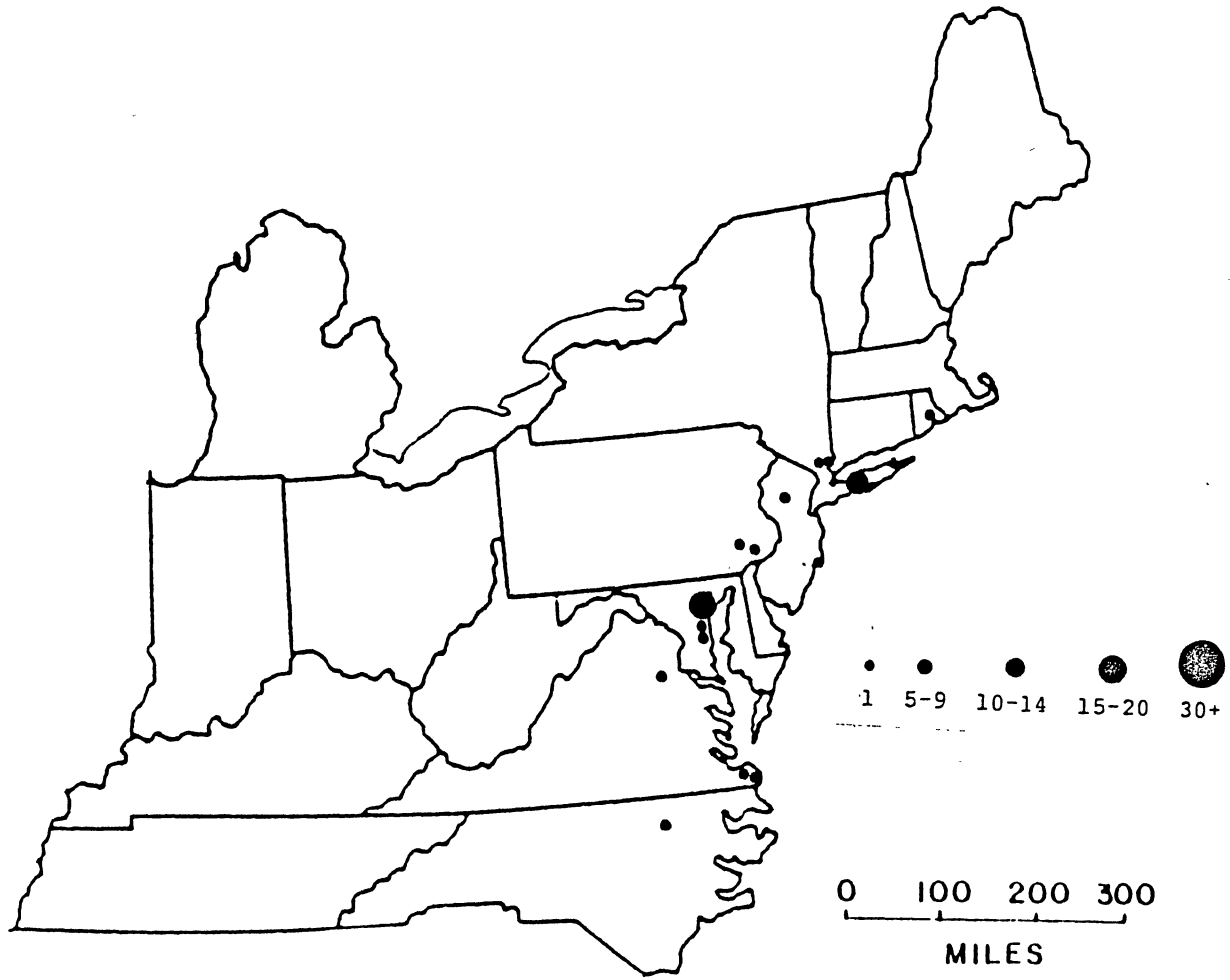
Source: 1986 NCAA Lacrosse Rosters

Figure 42. Recruiting Patterns of the Top 4 Colleges: 1986



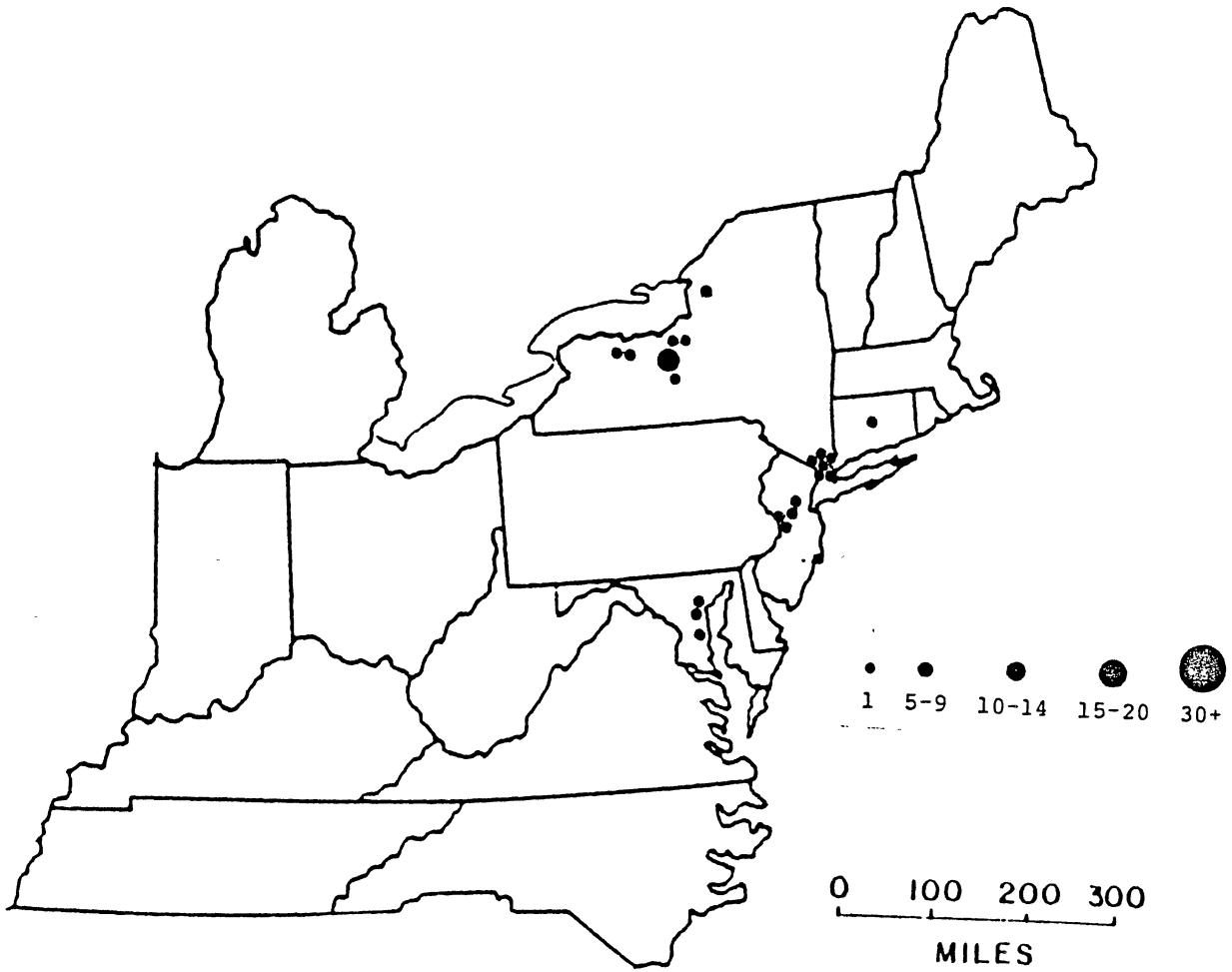
Source: 1986 NCAA Lacrosse Roster

Figure 43. Recruiting by Johns Hopkins University: 1986



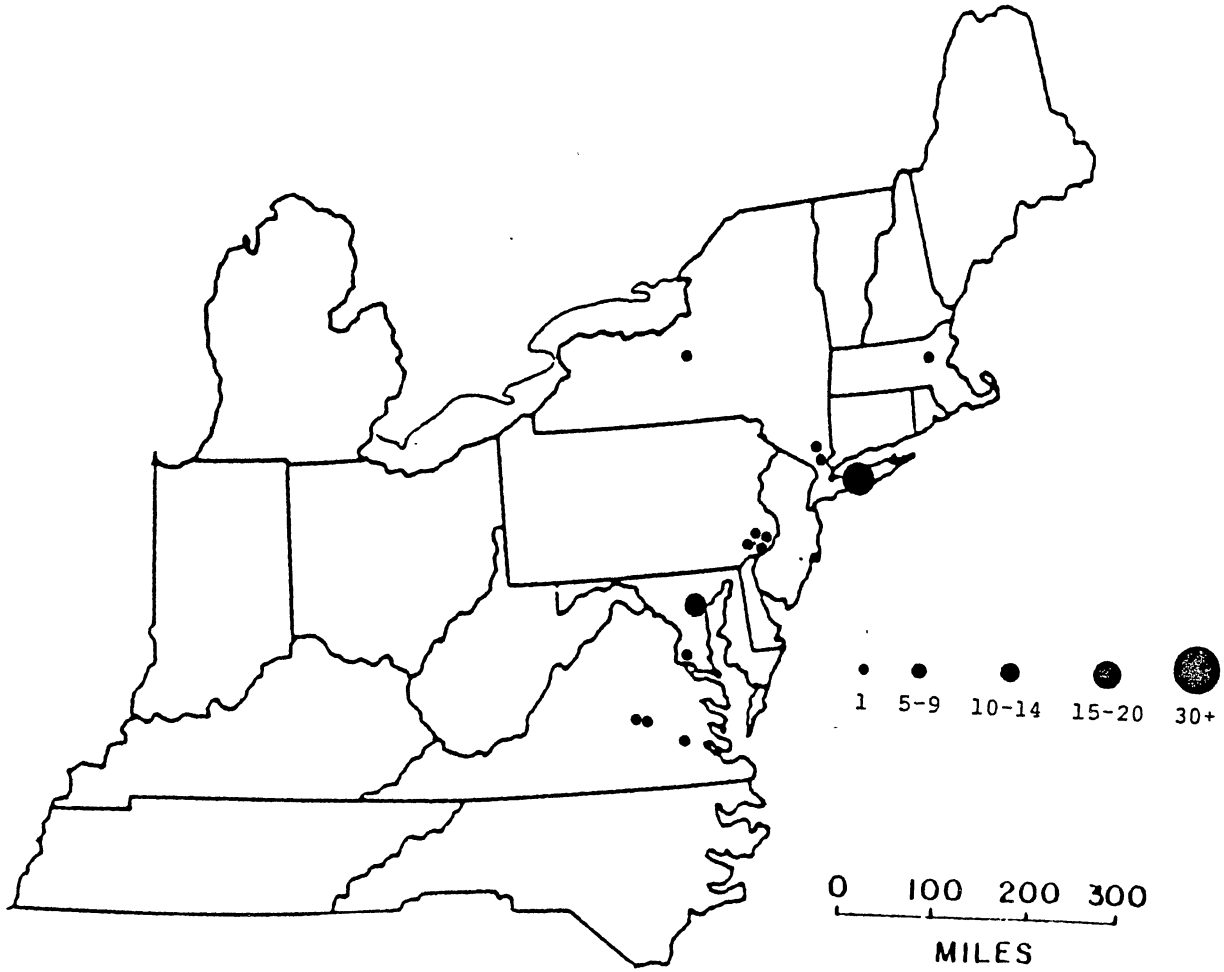
Source: 1986 NCAA Lacrosse Roster

Figure 44. Recruiting by the University of North Carolina: 1986



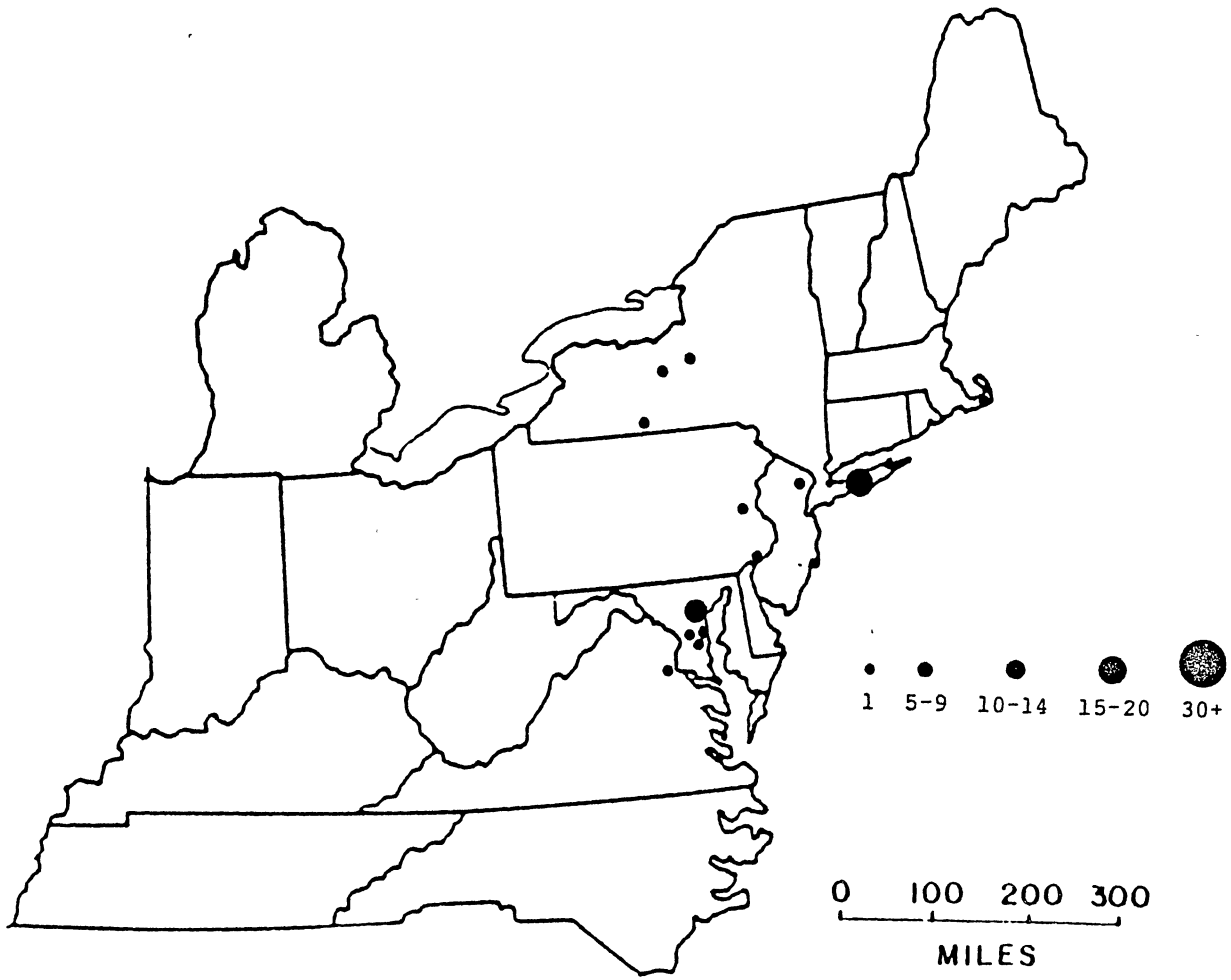
Source: 1986 NCAA Lacrosse Roster

Figure 45. Recruiting by Syracuse University: 1986



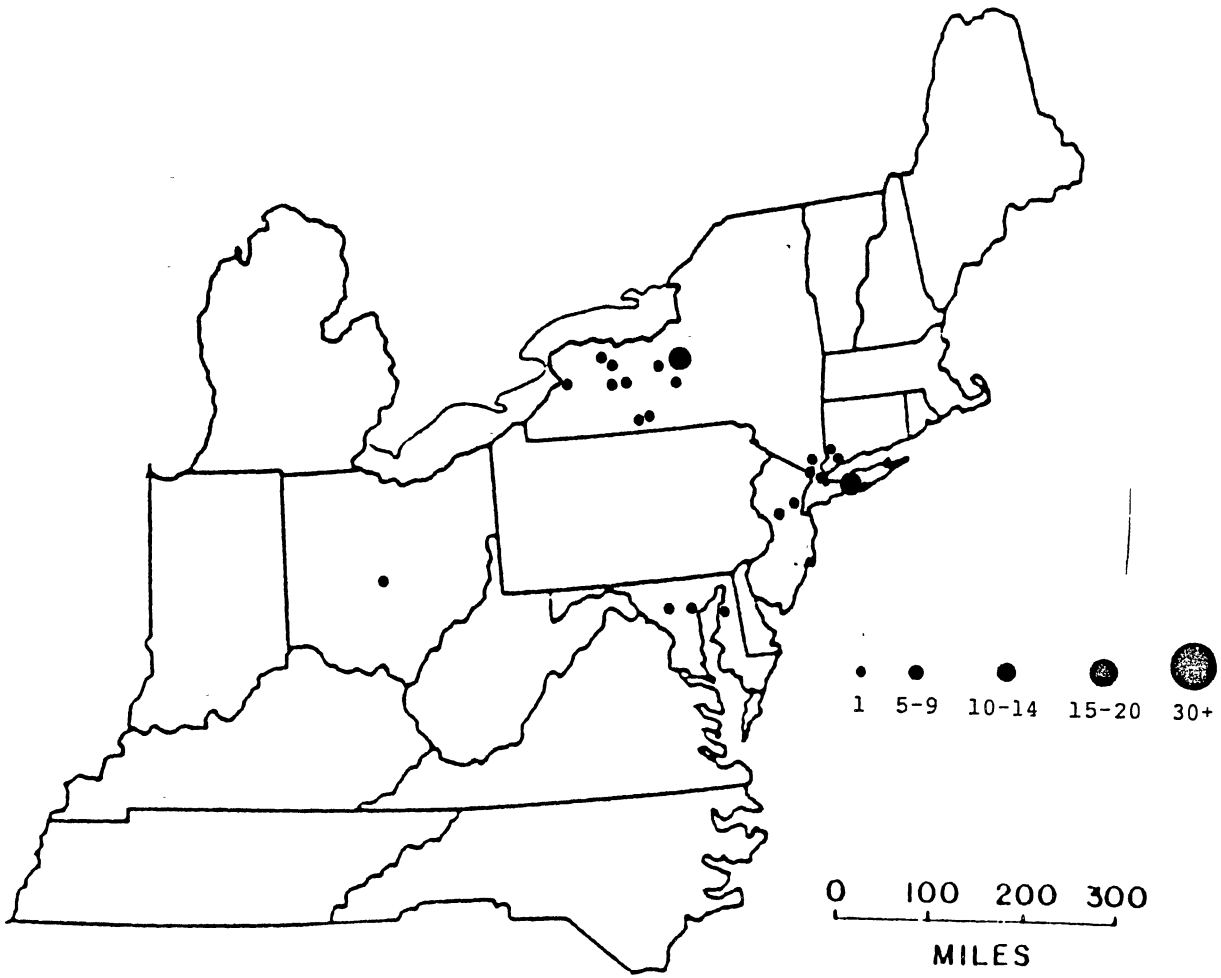
Source: 1986 NCAA Lacrosse Roster

Figure 46. Recruiting by the University of Virginia: 1986



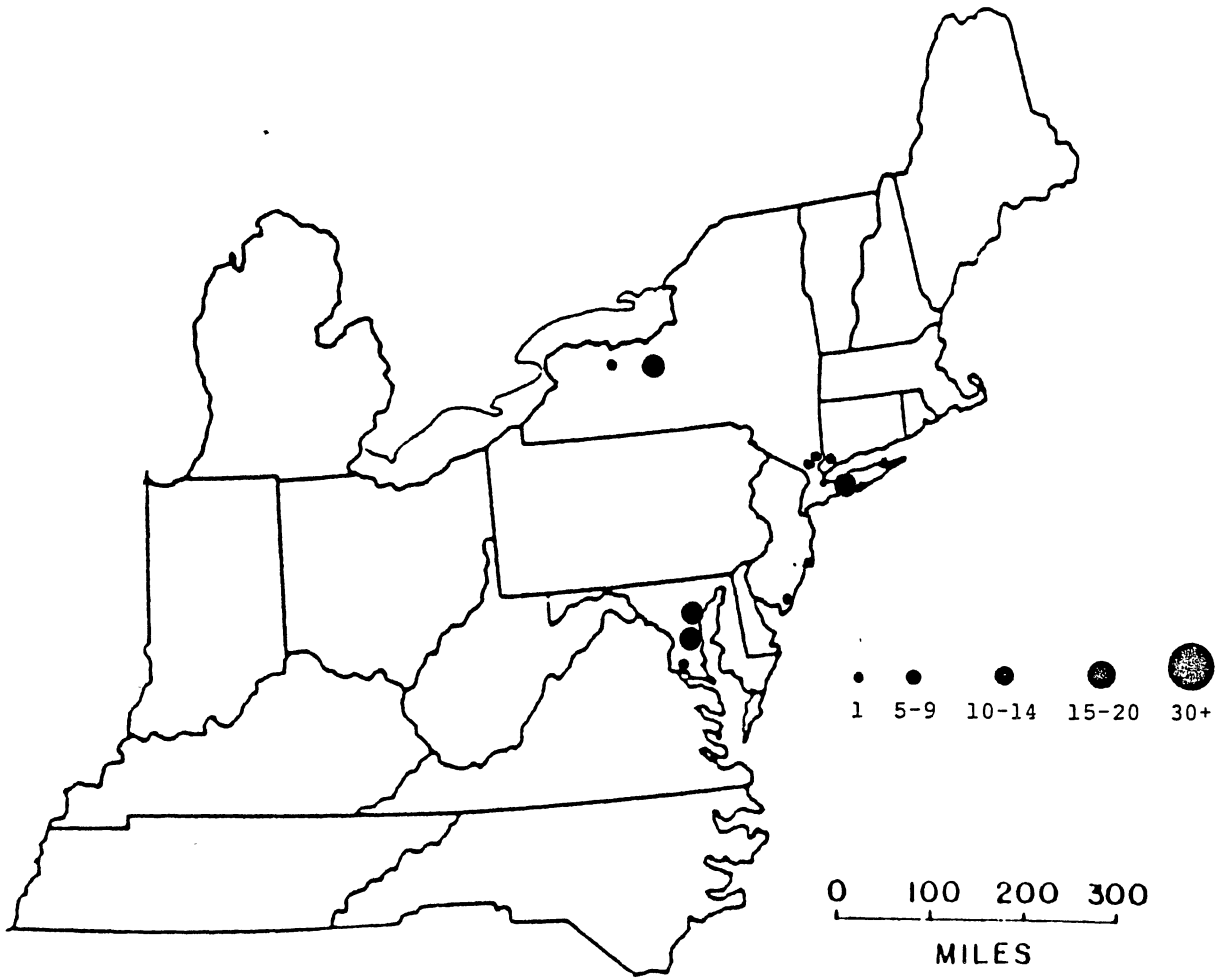
Source: 1986 NCAA Lacrosse Roster

Figure 47. Recruiting by the U.S. Naval Academy: 1986



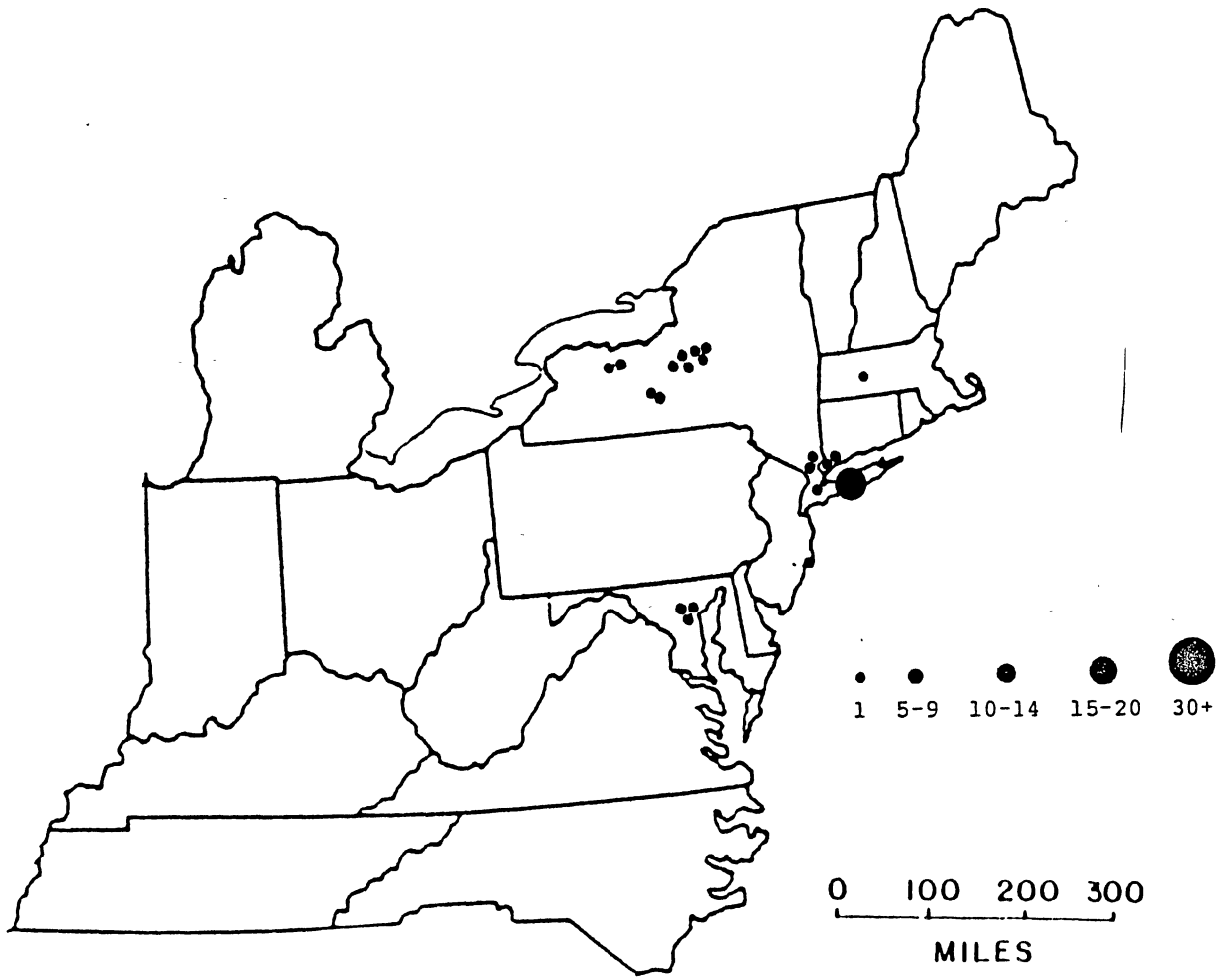
Source: 1986 NCAA Lacrosse Roster

Figure 48. Recruiting by Hobart College: 1986



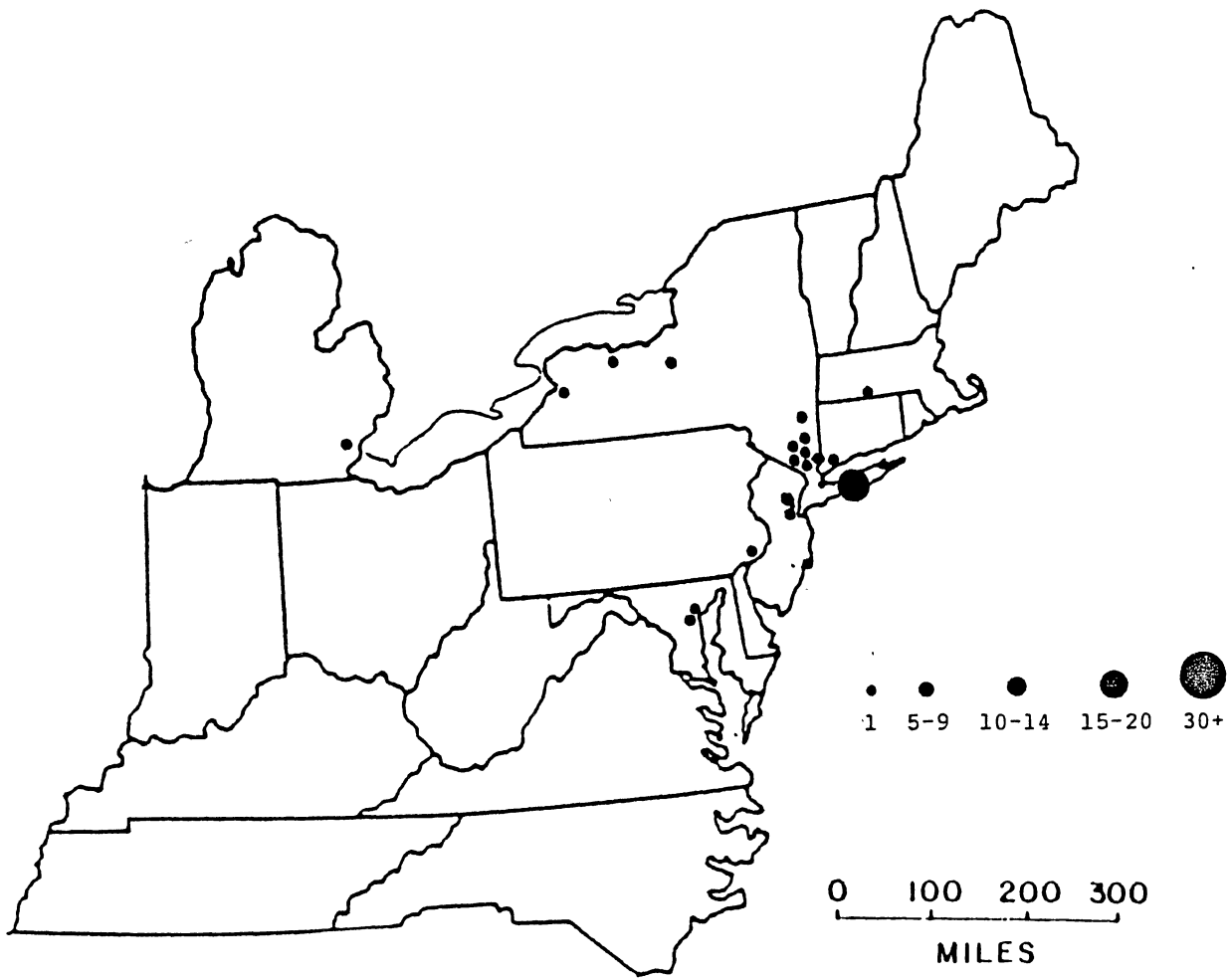
Source: 1986 NCAA Lacrosse Roster

Figure 49. Recruiting by the University of Maryland: 1986



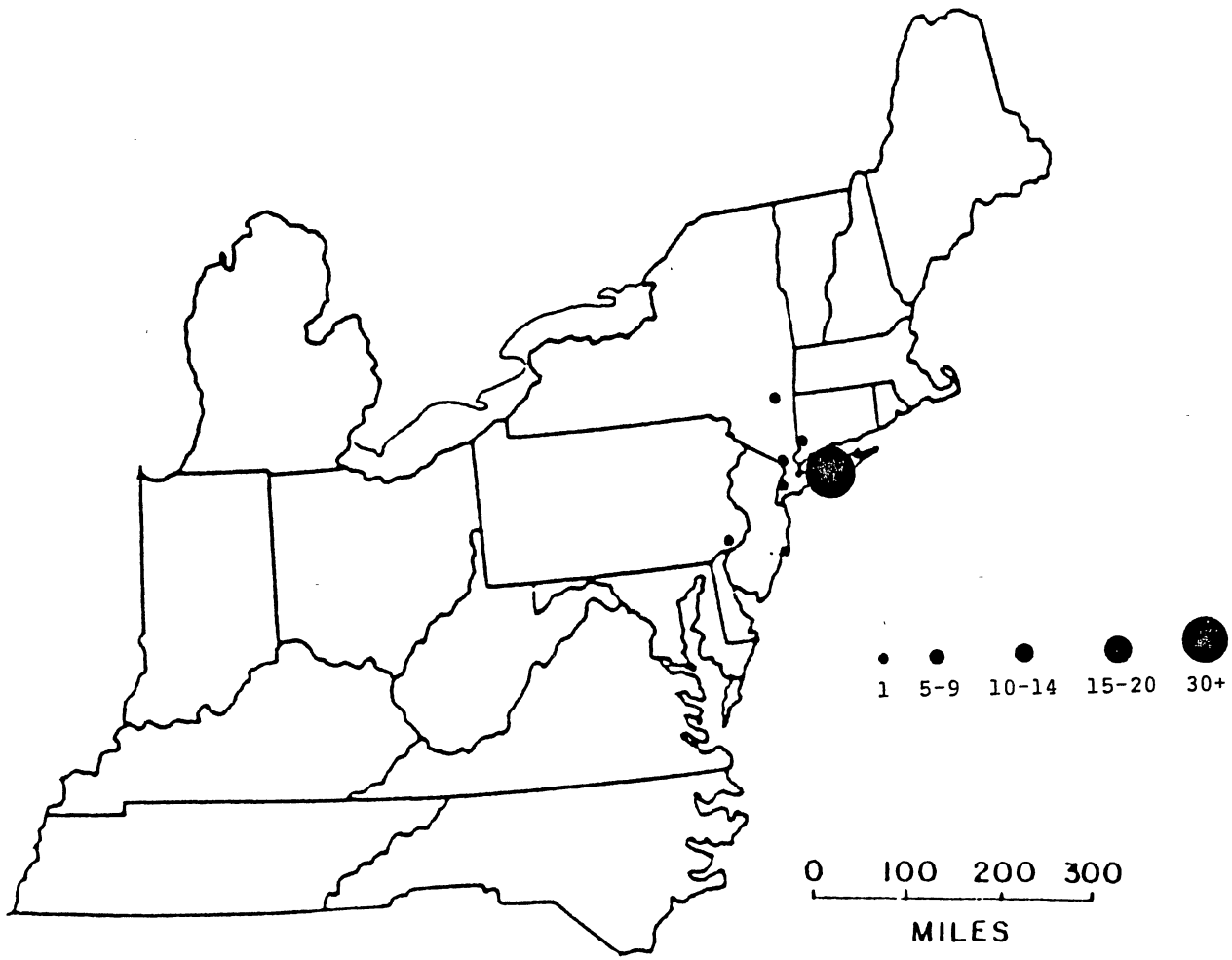
Source: 1986 NCAA Lacrosse Roster

Figure 50. Recruiting by Cornell University: 1986



Source: 1986 NCAA Lacrosse Roster

Figure 51. Recruiting by the U.S. Military Academy: 1986



Source: 1986 NCAA Lacrosse Roster

Figure 52. Recruiting by L.I.U./C.W. Post: 1986

Cornell and Hobart recruit largely from Long Island, Westchester, and central New York.

Syracuse relies heavily on central New York and some on Westchester and is the only top ten college without Long Island players.

Army relies on Long Island and Westchester for its talent.

C.W. Post relies almost exclusively on Long Island and is the only top team without any Maryland players.

CHAPTER VI

CONCLUSION

Summary Of Data

Production of lacrosse players has been examined at the NCAA level of participation. The objective was to geographically identify where lacrosse is played in the United States, via the evaluation of team rosters.

The NCAA data provided the means to establish lacrosse emphasis regions in the United States. The production of players at the secondary school level has increased faster than the number of NCAA playing opportunities. Competition between players for positions on NCAA teams has increased. Thus, the absolute production of players in the NCAA may in part be representative of the growth of lacrosse at the collegiate level, and may in part indicate where an increased emphasis on lacrosse has given players in certain states a competitive advantage.

Player production, more so than participation in the NCAA, is concentrated in the northeast. New York state is the current dominating force in collegiate lacrosse in the United States. Long Island, New York, with Nassau and Suffolk counties has the highest production of players in

the nation. The growth in production of players since 1975 indicates that New York state will remain the top producer of lacrosse talent in future years.

On a per capita basis, Maryland leads the rest of the nation, but its lead has diminished. Connecticut, Massachusetts, and New York each have increased their location quotient values while Maryland's has gone down.

The migration of lacrosse players from secondary school to college occurs across state boundaries with regularity. Over 54 percent of all players go out of state to play lacrosse at the NCAA level. New York state exports 50 percent of its players. New Yorkers are on 95 percent of all NCAA teams, and are present in every state having NCAA programs.

Regional differences do occur in the concentrated geography of intercollegiate lacrosse. Massachusetts has more players in the New England area than other states. Maryland players are better represented in the south than in any other NCAA participating region.

Extrapolations of production data are inherently flawed without prior knowledge of future events. Scenarios may be made to indicate only the type of conditions that may exist, if current or planned events do not vary. The future expansion of lacrosse player production and NCAA progams may be estimated from current data.

Future Growth In Lacrosse

Player Production

The state of Maryland has remained second in total production to New York for over ten years. Since 1975, Maryland's production of collegiate-bound lacrosse players has leveled off. The Baltimore area has been saturated with secondary school lacrosse programs and the peak in production has been reached. While Harford and Howard counties in Maryland increase production, other states will probably surpass Maryland in production.

By 1988, if the current state production rates continue, it is likely that Massachusetts will produce more players than Maryland. Within four years Connecticut and New Jersey should be producing more players than Maryland. New York and the surrounding states will be the geographical center of lacrosse production.

Pennsylvania is increasing production at a slower rate than top producing states. It is not likely that Pennsylvania will produce more players than Maryland for many years.

The next top producer of lacrosse talent may be Virginia. Virginia is beginning to increase production, and may become a major source of lacrosse talent in 10 years. Virginia currently relies on prep schools for the majority of its player production. Historically, the next step in the assimilation process of lacrosse into a state's athletic system is the adoption of lacrosse into

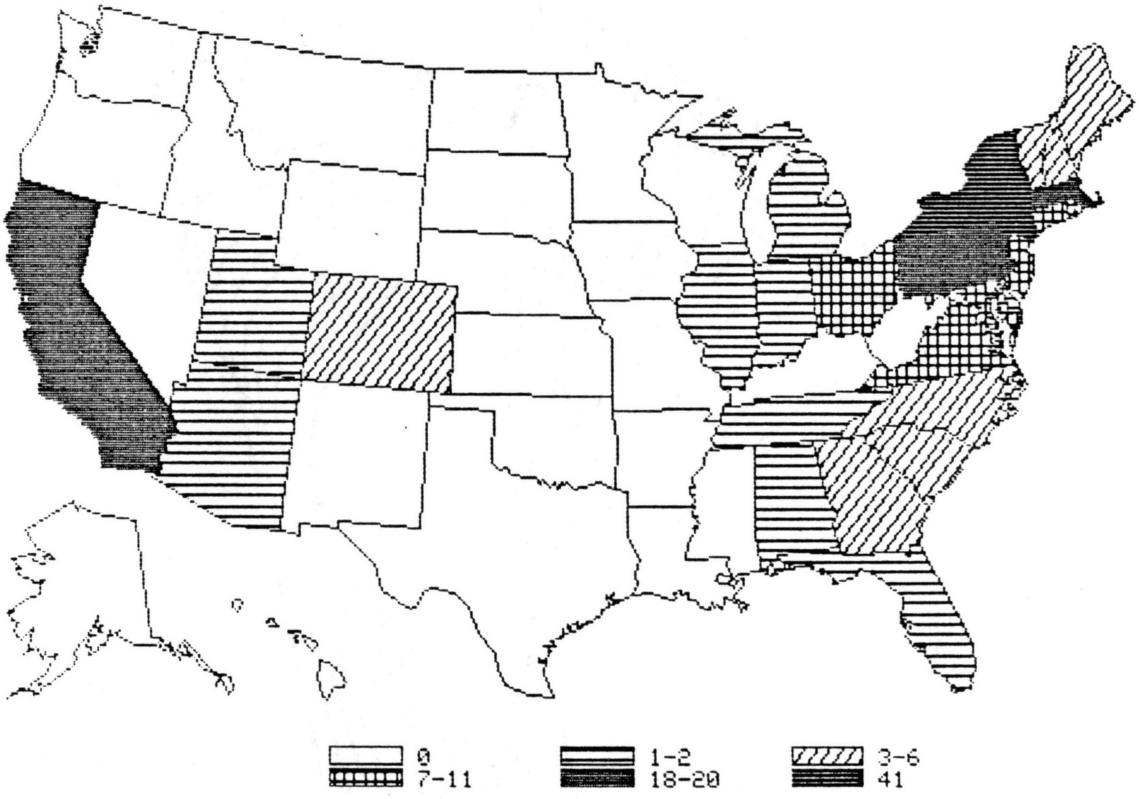
the public schools. Virginia appears to be at this stage. If this step is taken Virginia will join New York, Massachusetts, Connecticut, and New Jersey as a top producer of lacrosse talent in the country.

California, Colorado, Florida, Michigan, and North Carolina are on the verge of becoming significant lacrosse producing states. All five of these states have secondary school programs. California, Colorado, Michigan, and North Carolina have growing NCAA programs. The change in lacrosse player production in these five states over the next ten years should indicate whether or not lacrosse will continue to develop into a national sport in the United States.

Future NCAA Lacrosse Programs

Competitive intercollegiate lacrosse is not confined to members of the NCAA. The United States Intercollegiate Lacrosse Association (USILA) has a membership of 191 colleges nationwide (Appendix E). Most members of the USILA are also members of the NCAA. Members of the USILA who are not affiliated with the NCAA, are prime candidates for future expansion of the NCAA.

The opportunity to play lacrosse at the collegiate level extends beyond the confined geographical areas of the NCAA (Figure 53). Competitive USILA programs in the states of California (18), South Carolina (3), Georgia (3), and Arizona (2), documents the geographical expansion



Source: The NCAA, 1986. The Lacrosse Foundation, 1986. Blue Book of College Athletics 1985.

Figure 53. USILA Playing Opportunity: 1986

of intercollegiate lacrosse in the United States (Table XXI).

Intercollegiate lacrosse, since its introduction to collegiate athletics has mainly undergone regional contagion diffusion. Hierarchical diffusion which has occured in Colorado, Arizona, and California has resulted in the growth of lacrosse in the west. California has 18 USILA members, fourth in total programs behind the major eastern lacrosse states of New York, Pennsylvania, and Massachusetts. Colorado has developed four NCAA programs largely due to the adoption of lacrosse by the Air Force Academy in Colorado Springs. Arizona has developed lacrosse at the collegiate level at three major universities in the state. The University of Arizona and Arizona State University are members of the West Coast Lacrosse League. They compete against Brigham Young University, the University of California at Los Angeles, San Diego State University, Stanford University and most USILA teams in California.

Collegiate lacrosse programs that are neither NCAA nor USILA members exist throughout the United States. Information on independent college club lacrosse programs is inherently difficult to analyze due to the disaggregated conferences and leagues the clubs are affiliated with. An attempt was made to at least estimate the geographic diversity of independent club teams.

Combined (NCAA, USILA, and Independents), there are

TABLE XXI

PARTICIPATION PER STATE MEASURED BY TOTAL OPPORTUNITY

State	Colleges Per State Members Of NCAA	USILA	NCAA/USILA/Independents
New York	39	41	50
Pennsylvania	16	20	27
Mass.	18	19	23
California	1	18	18
Ohio	9	9	14
Virginia	9	11	14
Maryland	11	11	11
Connecticut	6	7	9
New Jersey	8	9	9
Texas	0	0	9
New Hampshire	5	6	7
Colorado	4	6	6
North Ca.	3	5	6
Vermont	5	6	6
Maine	3	3	4
Rhode Island	2	2	4
South Ca.	0	3	4
Arizona	0	2	3
Georgia	0	3	3
Illinois	1	1	3
Michigan	1	1	3

(Continued)

TABLE XXI

State	Colleges Per State Members Of NCAA	USILA	NCAA/USILA/Independents
Tennessee	0	2	3
Delaware	1	1	2
Dist. of Col.	1	1	2
Indiana	1	1	2
Louisiana	0	0	2
Oklahoma	0	0	2
West Virginia	0	0	2
Wisconsin	1	0	2
Alabama	0	1	1
Florida	0	1	1
Kentucky	0	0	1
Missouri	0	0	1
New Mexico	0	0	1
Oregon	0	0	1
Utah	0	1	1
Total	145	191	256

over 250 lacrosse programs in 35 states and the District of Columbia. The development of club lacrosse is the forerunner to new NCAA lacrosse programs. Collegiate teams in diverse geographic areas such as Texas, Louisiana, West Virginia, Oklahoma, and Oregon indicate the developing areas of intercollegiate lacrosse.

By 1990, at least 10 to 15 additional intercollegiate lacrosse teams should be members of the NCAA. New York state, which produces more players than there are opportunities to play, has a surplus of 558 players in the NCAA alone. USILA and independent teams located in New York total at least 50. If the current growth in production of players continues, New York will be the first state to increase the number of NCAA playing opportunities.

Connecticut, New Jersey, and Maryland produce 182 percent, 148 percent, and 145 percent, of their states' needs, respectively. Connecticut has a surplus of 142 players. Although the absolute surplus is not as great as it is in New York, the growth in production and its high surplus rate makes Connecticut the next prime candidate for future NCAA programs.

New Jersey and Maryland are over-producers of talent. Maryland, in particular, has actually shown a leveling off in production. The lack of USILA and independent college teams in their repective states indicates they are not likely to experience NCAA expansion in the near future.

Virginia may experience an increase in NCAA playing opportunities if player production continues to grow at its current rate. The state of Virginia has at least five non-NCAA lacrosse programs which are candidates for future expansion of the NCAA.

If the NCAA is going to expand into new geographic regions, it is most likely that the southeast will be the location. South Carolina, Georgia, Florida, and Tennessee combined have 11 college programs. A location on the fringe of the major lacrosse producing regions gives the southeast an inherent advantage over Arizona, California, Colorado, and Utah the next fastest growing lacrosse region.

The financial costs for transportation and recruiting in areas separated geographically from the center of lacrosse production in the northeast, act as a barrier to NCAA status for competitive western lacrosse programs. The key to successful collegiate programs in the west and south is the adoption of lacrosse at the secondary school level. Once a supply of local talent is developed, non-eastern colleges may begin to recruit from a larger selection of skilled players.

A Final Word

In 1889 John C. Gerndt of New York University contemplated why lacrosse had not been adopted as rapidly as anticipated in the United States. He wrote:

> The one objection to lacrosse which no doubt has kept it from becoming a popular game hitherto is the long time to learn to play it well (Weyland, 1965).

It was suggested in the late 1880's that baseball, rowing, and track and field had developed a tradition in the United States before lacrosse was able to firmly establish itself. These spring sports inevitably competed for athletes among the developing leisure class.

Lacrosse, originated in North America and played by Native American Indians, has evolved into a major collegiate sport on the east coast. The diffusion of modern intercollegiate lacrosse has covered a lot of territory since its inception in the St. Lawrence river valley. From the streets of New York City to the playing fields of the city of Baltimore by the mid-1800's, the initial diffusing agents had set the stage for the adoption of lacrosse by educational institutions along the east coast. Since World War II, the expansion of intercollegiate lacrosse has continued west and south across the United States. The evaluation of intercollegiate lacrosse in the United States represents the history and geography of one of North America's truly native sports.

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APPENDIX A

NCAA MEMBERSHIP: 1985-86

Division I

School	City	State
Santa Clara University	Santa Clara	CA
U.S. Air Force Academy	Colorado Springs	CO
University of Hartford	West Hartford	CT
Yale University	New Haven	CT
Georgetown University	Washington	DC
University Of Delaware	Newark	DE
University Of Notre Dame	Notre Dame	IN
Johns Hopkins University	Baltimore	MD
Loyola College	Baltimore	MD
University Of Maryland	College Park	MD
Univ. Of Maryland-Balt. Co.	Catonsville	MD
Towson State University	Towson	MD
U.S. Naval Academy	Annapolis	MD
Boston College	Chestnut Hill	MA
Harvard University	Cambridge	MA
Holy Cross College	Worcester	MA
Univ. Of Massachusetts	Amherst	MA
Michigan State University	East Lansing	MI
Dartmouth College	Hanover	NH
University Of New Hampshire	Durham	NH

Division I		
School	City	State
Farleigh Dickinson Univ.	Teaneck	NJ
Princeton University	Princeton	NJ
Rutgers University	New Brunswick	NJ
Colgate University	Hamilton	NY
Cornell University	Ithaca	NY
Hofstra University	Hempstead	NY
Marist College	Poughkeepsie	NY
Saint John's University	Jamaica	NY
Siena College	Loudonville	NY
Syracuse University	Syracuse	NY
U.S. Military Academy	West Point	NY
Duke University	Durham	NC
Univ. Of North Carolina	Chapel Hill	NC
Ohio State University	Columbus	OH
Bucknell University	Lewisburg	PA
Drexel University	Philadelphia	PA
Lafayette College	Easton	PA
Lehigh University	Bethlehem	PA
Pennsylvania State Univ.	University Park	PA
University Of Pennsylvania	Philadelphia	PA

Division I

School	City	State
Villanova University	Villanova	PA
Brown University	Providence	RI
Providence College	Providence	RI
University Of Vermont	Burlington	VT
Radford University	Radford	VA
Virginia Military Institute	Lexington	VA
University Of Virginia	Charlottesville	VA
Washington & Lee University	Lexington	VA
College Of William & Mary	Williamsburg	VA

Division II

School	City	State
Colorado School Of Mines	Golden	CO
University Of Denver	Denver	CO
University Of New Haven	West Haven	CT
University Of Lowell	Lowell	MA
Merrimack College	North Andover	MA
Springfield College	Springfield	MA

Division II

School	City	State
Mount Saint Mary's College	Emmitsburg	MD
New Hampshire College	Manchester	NH
Adelphi University	Garden City	NY
Le Moyne College	Syracuse	NY
Long Island U./C.W. Post	Greenvale	NY
Pace University	Pleasantville	NY
Queens College	Flushing	NY
Pfeiffer College	Misenheimer	NC
Ashland College	Ashland	OH
Kutztown University	Kutztown	PA
West Chester University	West Chester	PA
Randolph-Macon College	Ashland	VA
Saint Michael's College	Winooski	VT

Division III

School	City	State
Colorado College	Colorado Springs	CO
Connecticut College	New London	CT
Trinity College	Hartford	CT
Wesleyan University	Middletown	CT
Lake Forest College	Lake Forest	IL
Bates College	Lewiston	ME
Bowdoin College	Brunswick	ME
Colby College	Waterville	ME
Saint Mary's College	St. Mary's City	MD
Salisbury State College	Salisbury	MD
Washington College	Chestertown	MD
Western Maryland College	Westminster	MD
Amherst College	Amherst	MA
Babson College	Babson Park	MA
Curry College	Milton	MA
Mass. Inst. Of Technology	Cambridge	MA
Massachusetts Maritime Ac.	Buzzards Bay	MA
University Of Massachusetts	Boston	MA
Nichols College	Dudley	MA
Tufts University	Medford	MA

Division III

School	City	State
Western New England College	Springfield	MA
Westfield State College	Westfield	MA
Williams College	Williamstown	MA
New England College	Henniker	NH
Plymouth State College	Plymouth	NH
Drew University	Madison	NJ
Fairleigh Dickinson Univ.	Madison	NJ
Kean College	Union	NJ
Montclair State College	Upper Montclair	NJ
Stevens Institute Of Tech.	Hoboken	NJ
State Univ. Of N.Y. Albany	Albany	NY
Alfred University	Alfred	NY
Buffalo State Univ. College	Buffalo	NY
Clarkson University	Potsdam	NY
Cortland State Univ. College	Cortland	NY
Geneseo State Univ. College	Geneseo	NY
Hamilton College	Clinton	NY
Hartwick College	Oneonta	NY
Hobart & Wm. Smith Colleges	Geneva	NY
Ithaca College	Ithaca	NY

Division III

School	City	State
Manhattanville College	Purchase	NY
Nazareth College	Rochester	NY
New York Maritime College	Bronx	NY
City College Of New York	New York	NY
Polytechnic Inst. Of N.Y.	Brooklyn	NY
Oneonta State Univ. College	Oneonta	NY
Oswego State Univ. College	Oswego	NY
Potsdam State Univ. College	Potsdam	NY
Rensselaer Polytechnic Inst.	Troy	NY
Rochester Institute Of Tech.	Rochester	NY
University Of Rochester	Rochester	NY
Saint Lawrence University	Canton	NY
Skidmore College	Saratoga Springs	NY
State U. Of NY Stony Brook	Stony Brook	NY
U.S. Merchant Marine Academy	Kings Point	NY
Union College	Schenectady	NY
Denison University	Granville	OH
Kenyon College	Gambier	OH
Mount Union College	Alliance	OH
Oberlin College	Oberlin	OH

Division III

School	City	State
Ohio Wesleyan University	Delaware	OH
Wittenberg University	Springfield	OH
College Of Wooster	Wooster	OH
Dickinson College	Carlisle	PA
Franklin & Marshall College	Lancaster	PA
Gettysburg College	Gettysburg	PA
Haverford College	Haverford	PA
Lebanon Valley College	Annville	PA
Swarthmore College	Swarthmore	PA
Widener University	Chester	PA
Castleton State College	Castleton	VT
Middlebury College	Middlebury	VT
Norwich University	Northfield	VT
Hampden-Sydney College	Hampden-Sydney	VA
Lynchburg College	Lynchburg	VA
Roanoke College	Salem	VA
Lawrence University	Appleton	WI

APPENDIX B

TOTAL LACROSSE PLAYERS BY STATE/COUNTY

Arizona (1)

Maricopa (1)

California (16)

Los Angeles (6)

Orange (2)

Alameda (1)

Contra Costa (1)

Fresno (1)

Marin (1)

Monterey (1)

San Diego (1)

San Francisco (1)

Solano (1)

Colorado (38)

Denver (21)

Arapahoe (6)

Boulder (4)

Colorado (38)

El Paso (2)

Pitkin (2)

Jefferson (1)

Lake (1)

La Plate (1)

Connecticut (316)

Fairfield (163)

Hartford (85)

New Haven (42)

Litchfield (8)

New London (5)

Middlesex (4)

Tolland (4)

Windham (3)

Delaware (7)

New Castle (6)

Sussex (1)

Dist. of Col. (10)

Florida (14)

Palm Beach (6)

Browar

Dade (2)

Orange (2)

Collier (1)

Duval (1)

Georgia (8)

Fulton (6)

Bryan (1)

Muscogee (1)

Hawaii (3)

Honolulu (3)

Idaho (1)

Boise (1)

Illinois (22)

Cook (15)

Lake (4)

Rock Island (1)

St. Clair (1)

Winnebago (1)

Indiana (2)

Monroe (1)

St. Joseph (1)

Kentucky (1)

Jefferson (1)

'

Louisiana (2)

Jefferson (2)

'

Maine (14)

Cumberland (3)

Oxford (3)

Sagadahoc (3)

Kenebec (2)

Androscoggin (1)

Hancock (1)

Knox (1)

'

Maryland (507)

Baltimore City (107)

Ann Arundel (106)

Maryland (507)

Baltimore (105)

Harford (46)

Howard (40)

Montgomery (34)

Carrol (16)

Prince Georges (16)

Queen Annes (3)

Washington (3)

Dorchester (2)

Kent (2)

Talbot (2)

Wicomico (2)

Worcester (2)

'

Massachusetts (429)

Middlesex (182)

Norfolk (61)

Hampden (54)

Essex (44)

Massachusetts (429)	Missouri (2)
Plymouth (24)	Jackson (1)
Worcester (19)	St. Louis (1)
Suffolk (14)	
Barnstable (12)	Montana (1)
Bristol (7)	
Hampshire (7)	Missoula (1)
Franklin (3)	
Berkshire (1)	Nebraska (2)
Michigan (34)	Douglas (1)
	Lancaster (1)
Oakland (22)	
Wayne (6)	New Hampshire (46)
Macomb (4)	
Kent (1)	Rockingham (16)
Midland (1)	Hillsborough (9)
	Belknap (5)
Minnesota (2)	Grafton (5)
	Merrimack (5)
Hennepin (2)	Strafford (4)

New Hampshire (46)	New Jersey (381)
Cheshire (1)	Cumberland (2)
Sullivan (1)	Gloucester (1)
'	Sussex (1)
New Jersey (381)	'
	New Mexico (1)
Essex (74)	
Morris (62)	Cantron (1)
Union (47)	'
Bergen (31)	New York (1546)
Mercer (31)	
Somerset (30)	Nassau (421)
Middlesex (18)	Suffolk (312)
Monmouth (17)	Onondaga (200)
Hunterdon (14)	Westchester (160)
Ocean (12)	Monroe (87)
Passaic (11)	Rockland (58)
Burlington (8)	Ontario (25)
Camden (8)	New York (24)
Hudson (5)	Erie (23)
Warren (3)	Cortland (19)

New York (1546)	New York (1546)
Tompkins (16)	Dutchess (3)
Albany (15)	Franklin (3)
Broome (15)	Yates (3)
Oneida (15)	Madison (2)
Steuben (15)	Richmond (2)
Cayuga (10)	Allegheny (1)
Chemung (10)	Chautauqua (1)
Bronx (9)	Columbia (1)
Jefferson (9)	Essex (1)
Kings (9)	Genesee (1)
Schenectady (9)	Montgomery (1)
Queens (8)	Olean (1)
Saratoga (8)	Otsego (1)
Rensselaer (7)	Schoharie (1)
Washington (5)	Schuyler (1)
Orange (4)	Seneca (1)
Oswego (4)	Sullivan (1)
Putnam (4)	Tioga (1)
St. Lawrence (4)	
Ulster (4)	

North Carolina (14)	Ohio (68)
Wake (2)	Hamilton (2)
Alamance (1)	Loraine (2)
Cumberland (1)	Wayne (2)
Dare (1)	Champaign (1)
Durham (1)	Clark (1)
Forsyth (1)	Columbiana (1)
Mecklenberg (1)	Coshocton (1)
Nash (1)	Crawford (1)
Orange (1)	Erie (1)
Polk (1)	Knox (1)
Randolph (1)	Mahonig (1)
Stanly (1)	Montgomery (1)
Wayne (1)	Seneca (1)
	Stark (1)
Ohio (68)	Trumball (1)
	Wood (1)
Franklin (30)	
Cuyahoga (9)	Oregon (2)
Summit (5)	
Lucas (3)	Multnomah (2)

Pennsylvania (244)	Pennsylvania (244)
Montgomery (77)	Lancaster (1)
Delaware (57)	Lycoming (1)
Chester (29)	McKean (1)
Philadelphia (16)	Perry (1)
Allegheny (15)	York (1)
Bucks (12)	'
Northampton (5)	Rhode Island (48)
Cumberland (4)	
Berks (3)	Providence (31)
Lackawana (3)	Bristol (7)
Luzerne (3)	Kent (5)
Adams (2)	Newport (3)
Beaver (2)	Washington (2)
Centre (2)	'
Dauphin (2)	South Carolina (1)
Lebanon (2)	
Bradford (1)	Charleston (1)
Carbon (1)	'
Erie (1)	'
Indiana (1)	'

Tennessee (5)	Vermont (17)
Hamilton (2)	Windsor (7)
Knox (1)	Rutland (4)
Shelby (1)	Bennington (2)
Sullivan (1)	Orange (1)
'	Orleans (1)
Texas (11)	Washington (1)
Harris (6)	Windham (1)
Dallas (2)	'
Potter (1)	Virginia (101)
Tarrant (1)	Charlottesville (21)
Travis (1)	Fairfax (13)
'	Richmond (12)
Utah (2)	Virginia Beach (9)
Salt Lake (2)	Lexington (6)
'	Alexandria (5)
'	Fairfax City (5)
'	Roanoke (5)
'	Falls Church (4)
'	Montgomery (3)

Virginia (101)	Washington (5)
Norfolk (3)	Monogalia (1)
Arlington (2)	'
Buena Vista (1)	Wisconsin (2)
Caroline (1)	---
Fauquier (1)	Dane (1)
Goochland (1)	Milwaukee (1)
King George (1)	'
Loudoun (1)	'
Lynchburg (1)	'
Manassas (1)	'
New Kent (1)	'
Newport News (1)	'
Orange (1)	'
Pulaski (1)	'
Shenandoah (1)	'
'	'
Washington (5)	'
---	'
King (3)	'
Cowlitz (1)	'

APPENDIX C

GEOGRAPHIC LOCATIONS OF THE TOP NINTY CITIES AND TOWNS IN THE NATION PRODUCING NCAA LACROSSE PLAYERS: 1986

40+	26 - 37
Maryland	Maryland
Baltimore (107)	Annapolis (33)
	Towson (27)
New York	
	Massachusetts
Syracuse (56)	
Camilus (41)	Longmeadow (26)
26 - 37	New York
	Rochester (37)
Connecticut	Levittown (36)
	Yorktown Hghts (36)
New Canaan (33)	Huntington (32)
Wilton (30)	Garden City (30)
West Hartford (28)	Manhasett (29)

17 - 24

Colorado
Denver (20)
'
Connecticut
Greenwich (19)
'
Maryland
Ellicot City (19)
Severna Park (19)
Columbia (18)
Timonium (18)
'
Massachusetts
Concord (23)
Sudbury (20)
Lexington (18)

New Jersey
Montclair (24)
Summit (20)
Princeton (19)
Maplewood (17)
New York
NYC (24)
Syosset (21)
Baldwin (20)
E. Meadow (20)
Farmgdale (18)
Faytville (18)
Geneva (18)
Masapequa (18)
PtWshgton (18)
Scarsdale (18)
Suffern (17)

Ohio
Worthington (18)
'
Pennsylvania
West Chester (21)
'
Rhode Island
Providence (19)
'
Virginia
Charlottesvl (21)
'
'
'
'
'

10 - 16

Connecticut	Massachusetts	New York
Norwalk (14)	Framingham (15)	Ithaca (15)
Simsbury (12)	Peabody (14)	Wantagh (15)
Fairfield (11)	Billerica (14)	Corning (14)
Ridgefield (11)	Hingham (12)	Fairport (14)
Madison (10)	Newton (11)	Freeport (14)
'	Winchester (11)	Hicksville (14)
Dist. of Col.		Manlius (14)
	New Jersey	Northport (14)
Washington (10)		Cortland (13)
	Westfield (12)	Liverpool (13)
Maryland	Livingston (10)	Smithtown (13)
		Katonah (12)
Bethesda (13)	New York	Baldwinsvl (11)
Bel Air (11)		Stony Brook (11)
Lutherville (10)	Bayshore (16)	E. Northport (10)
'	Elmont (16)	Lindenhurst (10)
'	Huntington (16)	Merrick (10)
'	Setauket (16)	West Islip (10)
'	Dix Hills (15)	'

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10 - 16

Ohio

Columbus (10)

Pennsylvania

Philadelphia (16)

Springfield (11)

APPENDIX D

TOP FIFTY SECONDARY SCHOOLS PRODUCING NCAA LACROSSE PLAYERS: 1986

20 - 35	15 - 19	10 - 14
Connecticut	Maryland	Connecticut
Wilton	Loyola	Avon Old Farms
New Canaan		Choate
'	Massachusetts	Kent
Maryland		Simsbury
	Longmeadow	'
Calvert Hall	Concord-Carlisle	Maryland
St. Mary's	Phillips Academy	
Gillman		St. Pauls
'	New Jersey	Boys' Latin
New York		Mt. St. Joseph
	Summit	Dulaney
West Genesee		Severn
Ward Melville	New York	Severna Park
C. Spring Harbor		'
Garden City	Farmingdale	Massachusetts
'	Yorktown	
'	Chaminade	Deerfield Acad.
'	St. Anthony's	Lincoln-Sudbury
'		Tabor Academy

10 - 14	10 - 14
Michigan	New York
Brother Rice	Bayshore
'	Half Hollow Hills E
New Jersey	Ithaca
Westfield	Sewanaka
Montclair	Smithtown East
'	'
New York	Pennsylvania
Huntington	Episcopal Academy
Suffern	Haverford
Bishop Ludden	'
Geneva	Rhode Island
Jamesville - Dewitt	Moses Brown
Liverpool	'
Manhasset	'
Levittown - Division	'

APPENDIX E

USILA MEMBERSHIP: 1985-86

Division I

School	City	State
Auburn University	Auburn	AL
Arizona State University	Tempe	AZ
University Of Arizona	Tucson	AZ
Univ. Of Cal., Berkeley	Berkeley	CA
Cal. Univ. Of Davis	Davis	CA
Cal. Univ. Of Santa Barbara	Santa Barbara	CA
University Of Cal L.A.	Los Angeles	CA
University Of The Pacific	Stockton	CA
Pepperdine University	Malibu	CA
San Diego State University	San Diego	CA
Santa Clara University	Santa Clara	CA
University Of Soutern Cal.	Los Angeles	CA
Stanford University	Stanford	CA
Colorado State University	Fort Collins	CO
University Of Colorado	Boulder	CO
U.S. Air Force Academy	Colorado Springs	CO
Fairfield University	Fairfield	CT
Yale University	New Haven	CT
Georgetown University	Washington	DC
University Of Delaware	Newark	DE

Division I

School	City	State
University Of South Florida	Tampa	FL
Georgia Inst. Of Tech.	Atlanta	GA
University Of Georgia	Athens	GA
University Of Notre Dame	Notre Dame	IN
Johns Hopkins University	Baltimore	MD
Loyola College	Baltimore	MD
University Of Maryland	College Park	MD
Univ. Of Maryland-Balt. Co.	Catonsville	MD
Towson State University	Towson	MD
U.S. Naval Academy	Annapolis	MD
Boston College	Chestnut Hill	MA
Harvard University	Cambridge	MA
Holy Cross College	Worcester	MA
Univ. Of Massachusetts	Amherst	MA
Michigan State University	East Lansing	MI
Dartmouth College	Hanover	NH
University Of New Hampshire	Durham	NH
Farleigh Dickinson Univ.	Teaneck	NJ
Princeton University	Princeton	NJ
Rutgers University	New Brunswick	NJ

Division I

School	City	State
Adelphi University	Garden City	NY
Colgate University	Hamilton	NY
Columbia University	New York	NY
Cornell University	Ithaca	NY
Fordham University	Bronx	NY
Hofstra University	Hempstead	NY
Manhattan	Riverdale	NY
Saint John's University	Jamaica	NY
Siena College	Loudonville	NY
Syracuse University	Syracuse	NY
U.S. Military Academy	West Point	NY
Davidson	Davidson	NC
Duke University	Durham	NC
Univ. Of North Carolina	Chapel Hill	NC
Ohio State University	Columbus	OH
Bucknell University	Lewisburg	PA
Drexel University	Philadelphia	PA
Lafayette College	Easton	PA
Lehigh University	Bethlehem	PA
Pennsylvania State Univ.	University Park	PA

Division I

School	City	State
University Of Pennsylvania	Philadelphia	PA
Villanova University	Villanova	PA
Brown University	Providence	RI
Providence College	Providence	RI
The Citadel	Charleston	SC
Clemson University	Clemson	SC
University Of South Carolina	Columbia	SC
University Of Tennessee	Knoxville	TN
Brigham Young University	Provo	UT
University Of Vermont	Burlington	VT
James Madison University	Harrisonburg	VA
Radford University	Radford	VA
Virginia Military Institute	Lexington	VA
Virginia Poly Inst & St Univ	Blacksburg	VA
University Of Virginia	Charlottesville	VA
Washington & Lee University	Lexington	VA
College Of William & Mary	Williamsburg	VA

Division II

School	City	State
Cal Poly State Univ.	San Luis Obispo	CA
Cal. State Univ. Sacremento	Sacremento	CA
Colorado School Of Mines	Golden	CO
University Of Hartford	West Hartford	CT
University Of New Haven	West Haven	CT
Mount Saint Mary's College	Emmitsburg	MD
Assumption College	Worcester	MA
University Of Lowell	Lowell	MA
Merrimack College	North Andover	MA
Springfield College	Springfield	MA
Keene State College	Keene	NH
New Hampshire College	Manchester	NH
Dowling College	Oakdale	NY
Long Island U./C.W. Post	Greenvale	NY
Southhampton College Of LIU	Southampton	NY
Pfeiffer College	Misenheimer	NC
Ashland College	Ashland	OH
Bloomsburg University	Bloomsburg	PA
East Stroudsburg University	East Stroudsburg	PA
Kutztown University	Kutztown	PA

Division II

School	City	State
Millersville University	Millersville	PA
West Chester University	West Chester	PA
Randolph-Macon College	Ashland	VA
Saint Michael's College	Winooski	VT

Division III

School	City	State
Cal. Univ. Of San Diego	La Jolla	CA
Claremont-Mudd-Scripps	Claremont	CA
Humboldt State University	Arcata	CA
Occidental College	Los Angeles	CA
Sonoma State University	Rohnert Park	CA
Whittier College	Whittier	CA
Colorado College	Colorado Springs	CO
Connecticut College	New London	CT
Trinity College	Hartford	CT
Wesleyan University	Middletown	CT
Emory University	Atlanta	GA
Lake Forest College	Lake Forest	IL
Bates College	Lewiston	ME
Bowdoin College	Brunswick	ME
Colby College	Waterville	ME

Division III

School	City	State
Saint Mary's College	St. Mary's City	MD
Salisbury State College	Salisbury	MD
Washington College	Chestertown	MD
Western Maryland College	Westminster	MD
Amherst College	Amherst	MA
Babson College	Babson Park	MA
Mass. Inst. Of Technology	Cambridge	MA
Massachusetts Maritime Ac.	Buzzards Bay	MA
University Of Massachusetts	Boston	MA
Nichols College	Dudley	MA
Tufts University	Medford	MA
Western New England College	Springfield	MA
Westfield State College	Westfield	MA
Williams College	Williamstown	MA
Worchester Polytechnic Inst.	Worchester	MA
New England College	Henniker	NH
Plymouth State College	Plymouth	NH
Drew University	Madison	NJ
Fairleigh Dickinson Univ.	Madison	NJ
Kean College	Union	NJ
Montclair State College	Upper Montclair	NJ
Stevens Institute Of Tech.	Hoboken	NJ
Stockton State College	Pomona	NJ

Division III

School	City	State
State Univ. Of N.Y. Albany	Albany	NY
Alfred University	Alfred	NY
Buffalo State Univ. College	Buffalo	NY
Clarkson University	Potsdam	NY
Cortland State Univ. College	Cortland	NY
Geneseo State Univ. College	Geneseo	NY
Hamilton College	Clinton	NY
Hartwick College	Oneonta	NY
Hobart & Wm. Smith Colleges	Geneva	NY
Ithaca College	Ithaca	NY
Manhattanville College	Purchase	NY
Marist College	Poughkeepsie	NY
New York Maritime College	Bronx	NY
City College Of New York	New York	NY
Polytechnic Inst. Of N.Y.	Brooklyn	NY
Oneonta State Univ. College	Oneonta	NY
Oswego State Univ. College	Oswego	NY
Potsdam State Univ. College	Potsdam	NY
Queens College	Flushing	NY
Rensselaer Polytechnic Inst.	Troy	NY
Rochester Institute Of Tech.	Rochester	NY
University Of Rochester	Rochester	NY
Saint Lawrence University	Canton	NY

Division III

School	City	State
Skidmore College	Saratoga Springs	NY
State U. Of NY Stony Brook	Stony Brook	NY
U.S. Merchant Marine Academy	Kings Point	NY
Union College	Schenectady	NY
Denison University	Granville	OH
Kenyon College	Gambier	OH
Mount Union College	Alliance	OH
Oberlin College	Oberlin	OH
Ohio Wesleyan University	Delaware	OH
Wittenberg University	Springfield	OH
College Of Wooster	Wooster	OH
Dickinson College	Carlisle	PA
Franklin & Marshall College	Lancaster	PA
Gettysburg College	Gettysburg	PA
Haverford College	Haverford	PA
Lebanon Valley College	Annville	PA
Saint Vincent College	Latrobe	PA
Swarthmore College	Swarthmore	PA
Widener University	Chester	PA
University Of The South	Sewanne	TN
Castleton State College	Castleton	VT
Lyndon State College	Lyndonville	VT
Middlebury College	Middlebury	VT

Division III

School	City	State
Norwich University	Northfield	VT
Hampden-Sydney College	Hampden-Sydney	VA
Lynchburg College	Lynchburg	VA
Roanoke College	Salem	VA
Lawrence University	Appleton	WI

VITA

Steven Kelly Luce

Candidate for the Degree of

Master of Science

Thesis: THE GEOGRAPHY OF INTERCOLLEGIATE LACROSSE IN THE UNITED STATES: 1986

Major Field: Geography

Biographical:

Education: Graduated from Carle Place High School, Carle Place, New York, in June, 1978; received Bachelor of Science degree at Cornell University, Ithaca, New York, in May, 1982; completed requirements for the Masters of Science degree at Oklahoma State University, Stillwater, Oklahoma, in December, 1986.

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